



August 22, 2019  
Reference No. WM16-0435

City of Hamilton  
77 James Street North, Suite 400  
Hamilton, ON L8R 3K3

**Attention: Winston Wang  
Project Manager**

**Municipal Class Environmental Assessment and Conceptual Design of  
Elevated Water Storage Facility and Pumping Station for Pressure District 7  
Final Project File Report**

Cole Engineering Group Ltd. (COLE) is pleased to submit this final Project File Report for the Municipal Class Environmental Assessment and Conceptual Design of Elevated Water Storage Facility and Pumping Station for the Pressure District 7. This report documents the Schedule B Municipal Class EA planning process undertaken, including communication and consultation, the preferred solution, mitigation measures and next steps.

Following the City's review of the draft report, COLE has incorporated comments received and circulate the revised report to review agencies prior to filing the report for the 30-day public review period.

We trust the final report is satisfactory and look forward to receiving comments. Should you have any questions or require additional information, please do not hesitate to contact me the underwriter.

Best Regards,  
**COLE ENGINEERING GROUP LTD.**

Shelley Kuan, P. Eng.  
Project Manager

SK/ad

c.: Philip Gray, Rhona Scott - COLE

**COLE ENGINEERING GROUP LTD.**

HEAD OFFICE

70 Valleywood Drive, Markham, ON Canada L3R 4T5

T. 905 940 6161 | 416 987 6161 F. 905 940 2064

[www.coleengineering.ca](http://www.coleengineering.ca)



PREPARED BY:  
**COLE ENGINEERING GROUP LTD.**

---

Rhona Scott  
 Environmental Specialist, M.Sc., EPT, CISEC

---

Shelley Kuan, P.Eng  
 Project Manager  
 Infrastructure Planning

CHECKED BY:  
**COLE ENGINEERING GROUP LTD.**

---

Philip Gray, P.Eng.  
 Sector Leader  
 Infrastructure Planning

AUTHORIZED FOR ISSUE BY:  
**COLE ENGINEERING GROUP LTD.**

---

Philip Gray, P.Eng.  
 Sector Leader  
 Infrastructure Planning

**Issues and Revisions Registry**

Identification	Date	Description of issued and/or revision
Draft Project File Report	October 16, 2018	For City Review
DRAFT Final Project File Report	January 28, 2019	For City Review
DRAFT Final Project File Report	February 12, 2019	For Submission
Final Project File Report	August 22, 2019	For Submission

**Statement of Conditions**

This Report / Study (the “Work”) has been prepared at the request of, and for the exclusive use of, the Owner / Client, City of Hamilton and its affiliates (the “Intended User”). No one other than the Intended User has the right to use and rely on the Work without first obtaining the written authorization of Cole Engineering Group Ltd. and its Owner. Cole Engineering Group Ltd. expressly excludes liability to any party except the Intended User for any use of, and/or reliance upon, the work.

Neither possession of the Work, nor a copy of it, carries the right of publication. All copyright in the Work is reserved to Cole Engineering Group Ltd. The Work shall not be disclosed, produced or reproduced, quoted from, or referred to, in whole or in part, or published in any manner, without the express written consent of Cole Engineering Group Ltd., City of Hamilton, or the Owner.

## Table of Contents

Transmittal Letter  
Table of Contents

<b>Executive Summary</b> .....	<b>1</b>
<b>1 Introduction</b> .....	<b>3</b>
1.1 Background .....	3
1.2 Study Purpose .....	3
1.3 Study Area .....	3
1.4 Municipal Class Environmental Assessment Planning Process.....	4
1.4.1 Environmental Assessment Act .....	4
1.4.2 Overview of the Municipal Class Environmental Assessment.....	5
1.4.2.1 Class EA Project Classification.....	7
1.4.2.2 Class EA Planning Principles.....	8
1.4.2.3 Communications and Consultation.....	8
1.5 Public Review of this Report and Next Steps .....	8
1.6 Part II Order Requests .....	9
<b>2 Legislative and Policy Considerations</b> .....	<b>10</b>
2.1 Federal Legislation .....	10
2.1.1 Canadian Environmental Assessment Act .....	10
2.1.2 Fisheries Act .....	10
2.1.3 Migratory Birds Convention Act .....	10
2.1.4 Species at Risk Act .....	11
2.2 Provincial Policies and Legislation.....	11
2.2.1 Niagara Escarpment Plan.....	11
2.2.2 Greenbelt Plan.....	12
2.2.3 Provincial Policy Statement .....	12
2.2.4 Endangered Species Act .....	13
2.2.5 Conservation Authorities Act .....	13
2.2.6 Clean Water Act.....	13
2.2.7 Ontario Heritage Act.....	14
2.3 Urban Hamilton Official Plan .....	14
2.4 Elfrida Growth Area Study .....	14
2.5 Rural Hamilton Official Plan .....	14
<b>3 Problem / Opportunity Statement</b> .....	<b>15</b>
<b>4 Existing Conditions</b> .....	<b>16</b>
4.1 Natural Environment.....	16
4.1.1 Physiography, Topography and Geology.....	16
4.1.2 Geotechnical.....	16
4.1.3 Hydrogeology .....	16
4.1.4 Terrestrial Environment .....	17
4.1.5 Aquatic Features and Fisheries.....	17
4.1.6 Significant Wildlife Habitat and Species at Risk.....	18
4.2 Cultural Environment.....	18

4.2.1	Archaeological Resources.....	18
4.2.2	Cultural Heritage Resources.....	18
4.3	Socio-Economic Environment.....	19
4.3.1	Existing Land Uses.....	19
4.3.2	Proximity to International Airport.....	20
4.3.3	Transportation Network.....	21
4.4	Technical.....	21
4.4.1	Current Infrastructure.....	21
4.4.2	System Capacity Requirement.....	22
<b>5</b>	<b>Alternative Elevated Water Storage Facility Sites.....</b>	<b>24</b>
5.1	Identification of Alternative Elevated Water Storage Facility Sites.....	24
5.2	Evaluation of Alternative Elevated Water Storage Facility Sites.....	24
5.3	Preferred Elevated Water Storage Facility Site.....	26
5.4	Elevated Water Storage Facility Conceptual Design Overview.....	30
5.4.1	Design Criteria.....	30
5.4.2	Estimated Capital Cost.....	30
5.5	Elevated Water Storage Facility Mitigation Measures.....	30
<b>6</b>	<b>Alternative Pumping Station Sites.....</b>	<b>33</b>
6.1	Identification of Alternative Pumping Station Sites.....	33
6.2	Evaluation of Alternative Pumping Station Sites.....	33
6.3	Preferred Pumping Station Site.....	34
6.4	Pumping Station Conceptual Design.....	34
6.4.1	Design Criteria.....	34
6.4.2	Estimated Capital Cost.....	34
6.5	Pumping Station Mitigation Measures.....	37
<b>7</b>	<b>Communications and Consultation.....</b>	<b>40</b>
7.1	Public and Agency Notification.....	40
7.2	Notice of Study Commencement and Public Information Centre #1.....	40
7.3	Notice of Public Information Centre # 2.....	41
7.4	Notice of Study Completion.....	41
7.5	Public Information Centre # 1.....	41
7.6	Public Information Centre #2.....	42
7.7	Agency and Public Comments and Responses.....	42
7.8	Indigenous Communities Consultation.....	51
<b>8</b>	<b>Permits and Approvals.....</b>	<b>53</b>
8.1	MECP.....	53
8.2	City of Hamilton.....	53
8.3	Airport Authority.....	54
<b>9</b>	<b>Conclusions and Recommendations.....</b>	<b>55</b>
9.1	Future Commitments.....	55
<b>10</b>	<b>References.....</b>	<b>56</b>

## LIST OF TABLES

Table 5.1	Evaluation of Alternative Elevated Water Storage Facility Sites .....	27
Table 5.2	Conceptual Cost Estimates for Elevated Water Storage Facility .....	30
Table 5.3	Elevated Water Storage Facility Mitigation Measures .....	31
Table 6.1	Evaluation of Alternative Pumping Station Sites .....	35
Table 6.2	Conceptual Cost Estimates for Pumping Station .....	37
Table 6.3	Pumping Station Mitigation Measures .....	38
Table 7.1	Notification and Publication Dates .....	41
Table 7.2	Agencies and Public Communications Tracking Log .....	43
Table 7.3	Responses Received from Indigenous Communities .....	51
Table 8.1	Permits and Approvals .....	53

## LIST OF FIGURES

Figure 1-1	Study Area .....	4
Figure 1-2	Overview of the Municipal Class EA Planning Process (MEA 2015) .....	6
Figure 4-1	Existing Land Uses .....	20
Figure 4-2	Alternative Sites and Airport Zoning Overlay .....	21
Figure 4-3	Current PD7 Water System .....	22
Figure 5-1	Alternative Elevated Water Storage Facility Sites and Pump Station Sites .....	25

## APPENDICES

Appendix A	Technical Memorandum No. 1 Hydraulic Capacity Analysis
Appendix B	Technical Memorandum No. 2 Conceptual Design
Appendix C	Geotechnical and Hydrogeological Desktop Study
Appendix D	Archaeological Investigations
Appendix E	Cultural and Built Heritage Investigation
Appendix F	Natural Heritage Features Investigation
Appendix G	Public Consultation Plan, Notice of Study Commencement, Notice of PIC 1, Notice of PIC 2, Stakeholder Mailing List, Individuals Mailing List for Property Access, Public Notices and Response Forms, and Individuals Notices and Response Forms for Property Access
Appendix H	Summary of PIC 1 and Summary of PIC 2
Appendix I	Agency and Public Correspondence and Correspondence to Individuals for Property Access
Appendix J	Indigenous Communities Correspondence and Record of Follow up Phone Calls with Indigenous Communities

## ACRONYMS

<b>ANSI</b>	Area of Natural and Scientific Interest
<b>ATRIS</b>	Aboriginal and Treaty Rights Information System
<b>BHR</b>	Built Heritage Resources
<b>Class EA</b>	Class Environmental Assessment
<b>CHL</b>	Cultural Heritage Landscape
<b>COLE</b>	Cole Engineering Group Ltd.
<b>DWWP</b>	Drinking Water Works Permit
<b>EA Act</b>	Environmental Assessment Act
<b>ELC</b>	Ecological Land Classification
<b>ESA</b>	Environmentally Sensitive Area
<b>ESC</b>	Erosion and Sedimentation Control
<b>ESR</b>	Environmental Study Report
<b>EWSF</b>	Elevated Water Storage Facility
<b>GRIDS</b>	Growth Related Integrated Development Strategy
<b>HCA</b>	Hamilton Conservation Authority
<b>km</b>	kilometre
<b>L/s</b>	Litre per Second
<b>m<sup>3</sup></b>	Metres cubed
<b>MEA</b>	Municipal Engineers Association
<b>ML</b>	Mega Litres
<b>ML/d</b>	Mega Litres per Day
<b>MNRF/MNR</b>	Ministry of Natural Resources and Forestry / Ministry of Natural Resources
<b>MECP/MOE</b>	Ministry of the Environment, Conservation and Parks / Ministry of the Environment
<b>MTCS</b>	Ministry of Tourism, Culture and Sport
<b>NEC</b>	Niagara Escarpment Commission
<b>NEP</b>	Niagara Escarpment Plan
<b>NPCA</b>	Niagara Peninsula Conservation Authority
<b>PD</b>	Pressure District
<b>PIC</b>	Public Information Centre
<b>PPS</b>	Provincial Policy Statement
<b>PS</b>	Pumping Station
<b>PTTW</b>	Permit to Take Water
<b>SAR</b>	Species at Risk
<b>The City</b>	City of Hamilton
<b>TSSA</b>	Technical Standards and Safety Authority

## Executive Summary

The City of Hamilton retained Cole Engineering Group Ltd (COLE) to complete a Schedule B Municipal Class Environmental Assessment (Class EA) for an Elevated Water Storage Facility (EWSF) and Pumping Station (PS) for Pressure District 7 (PD7), in accordance with the planning process outlined in the Municipal Engineers Association (MEA) Municipal Class Environmental Assessment document (October 2000, amended in 2007, 2011 & 2015).

The need for the EWSF and PS for PD7 was identified and documented in the City of Hamilton Water and Wastewater Master Plan Class EA Report (2006) and Hamilton Southeast Mountain Water Servicing Strategy (Stantec, 2013). Both documents indicated limited redundancy and insufficient capacity to service future growth in the Southeast Mountain Area within PD7 and PD23.

The Problem / Opportunity Statement for this Class EA Study can be phrased as follows:

*A solution is required to provide additional storage and pumping capacity to support the future growth within PD7 and PD23, to enhance water system security and reliability, and to meet the MECP guidelines and City design standards, while improving system operating efficiencies.*

The study area is generally bounded by Golf Club Road and Dickenson Road East in the south; Second Road East to the east; Mud Street East, Isaac Brock Drive, Gordon Drummond Avenue, Paramount Drive/Stone Church Road in the north; and Mount Albion Trail / TransCanada Trail to the west.

The purpose of the Municipal Class Environmental Assessment (EA) is to select the preferred sites for a new EWSF and a new PS and to provide the conceptual design of the proposed EWSF and PS.

Five alternative solutions and sites were evaluated for a WWSF and three alternative solutions and sites were identified and evaluated for a new PS.

Following the evaluation of each alternative against natural, social, economic, and technical criteria, the preferred solution was identified:

- The preferred location for the EWSF was EWSF Site 3, located at 420 Trinity Church Road and south of Rymal Road East; and,
- The preferred location for the PS was PS Site 1, located at the northeast corner of Rymal Road East and Upper Centennial Parkway. Selection of the specific site is subject to agency approvals.

The following must be completed prior to implementation of the preferred EWSF and PS alternatives:

- Confirm the mitigation measures outlined in **Section 5.5** (for EWSF Site 3) and **Section 6.5** (PS Site 1) of this report, including further refinement to be completed during detailed design stage;
- Continue to consult with review agencies, (including MECP, Utilities, Indigenous communities, MNRF, MTCS) as applicable;
- Notify the requested parties (incl. Indigenous communities Haudeosaunee Development Institute (HDI), Haudeosaunee Confederacy Chiefs Council (HCCC) of field work related to environmental and archaeological assessment;
- Notify Indigenous communities, which requested updates of any archaeological findings and any follow-up investigative reports;

- Undertake a geotechnical investigation and hydrogeological investigation;
- Stage 2 Archeological Assessment for the recommended PS Sites 1. Findings from Stage 2 may trigger additional study, which would also need to be completed prior to implementation;
- Additional Cultural Heritage Study for the recommended EWSF Site 3;
- The design of sites will need to comply with zoning requirements where possible, however, zoning variances may be required where site zoning regulations cannot be met;
- Re-submit proposal to NAV Canada for the proposed (or preferred) EWSF Site 3 and PS Site 1, if the construction commencement of the proposed sites are after April 2, 2020, since the current assessment expires in 12-month from the date of assessment (April 2, 2019);
- Re-submit Transport Canada Aeronautical Assessment For Obstruction Evaluation Form, for the proposed (or preferred) EWSF Site 3 and PS Site 1, if the proposed sites construction commencement are after January 17, 2021, since the current assessment expires in 18-month from the date of assessment (July 17, 2019); and,
- Obtain the following permits and approvals:
  - MECP Environmental Compliance Approval;
  - MECP Permit to Take Water (PTTW);
  - DWWP Schedule 'C' for watermain extension;
  - Drinking Water Works Permit (DWWP) Amendment;
  - Ministry of Natural Resources and Forestry (MNRF);
  - DFO Self-Assessment should be completed by an aquatic biologist to determine the need for an application for authorization under the *Fisheries Act, 1985*;
  - City of Hamilton (site plan approval, building permit etc.);
  - City of Hamilton Zoning Variance, if current zoning requirements cannot be met;
  - Ministry of Tourism, Culture and Sport;
  - Electrical Safety Authority (ESA);
  - NAV Canada Notification;
  - Transport Canada Notification;
  - John C. Munro Hamilton International Airport Notification;
  - TSSA Approvals;
  - Maintain Permits / Approvals Status Log and Schedule; and,
  - Approvals from or notification to Horizon Utilities, Bell Canada, Hydro One and Rogers may also be required and should be determined at the detailed design stage.

## 1 Introduction

The City of Hamilton is planning to construct a new Elevated Water Storage Facility (EWSF) and a new Pumping Station (PS) for Pressure District 7 (PD7) to provide water serving for planned future growth in the Southeast Mountain Area within PD7 and PD23.

This study is being conducted in accordance with the approved requirements for a Schedule “B”, which includes Phases 1 and 2 of the Municipal Class EA planning and design process.

### 1.1 Background

PD7 is currently experiencing significant growth. In 2006, the City of Hamilton completed a Growth Related Integrated Development Strategy (GRIDS) which identified a recommended growth management strategy and associated urban structure for the City. The GRIDS identified PD7 as the preferred area for urban boundary expansion to meet 2031 provincial growth targets.

Based on the growth identified in PD7, the City of Hamilton Water and Wastewater Master Plan Class EA Report (2006) and Hamilton Southeast Mountain Water Servicing Strategy (Stantec, 2013) reports both identified the need for an EWSF and a PS for PD7 because of limited redundancy and insufficient capacity to service future growth in the area.

### 1.2 Study Purpose

The purpose of this Municipal Class EA is to select a preferred site(s) for a new EWSF and a new PS through a comprehensive and environmentally sound planning process open to public participation. Key objectives of the study include:

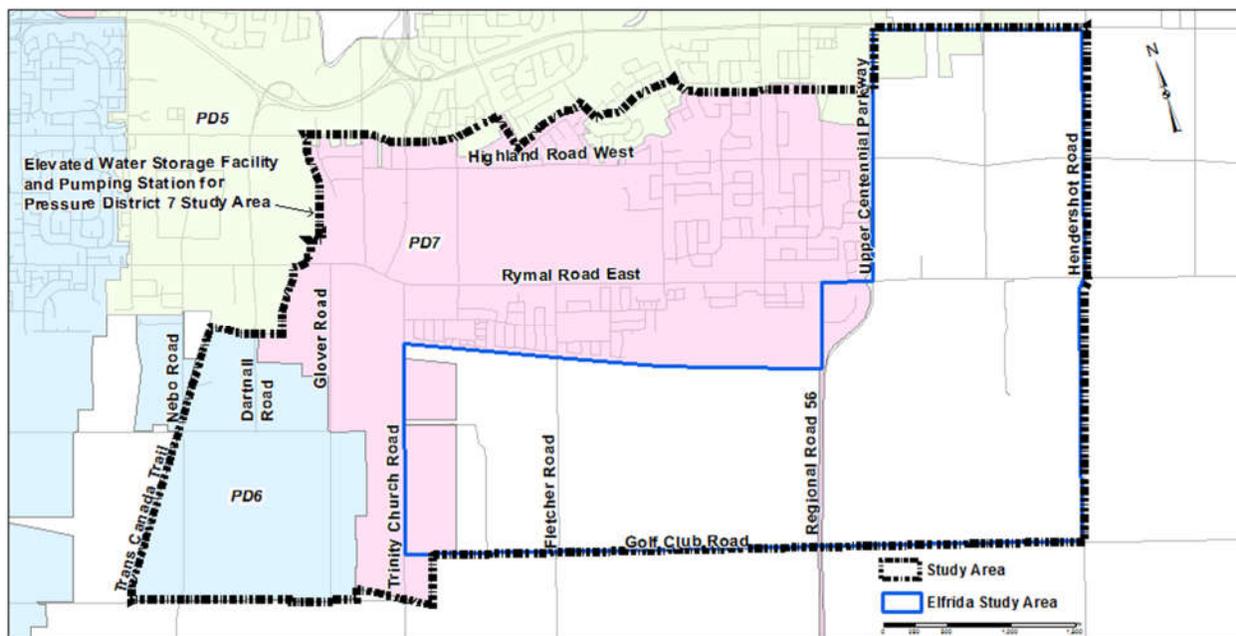
- Protection of the environment as defined in the Environmental Assessment Act (EA Act), through the wise management of resources. This goal will be met through background studies, consultation with the general and affected public and relevant review agencies, and mitigation and monitoring;
- Provision of a new EWSF and a new PS with minimal disruption to adjacent residents and the natural environment, while at the same time meeting regulatory agency requirements and the City’s design standards;
- Ensuring that present levels of service are maintained and future growth can be met;
- Involvement of directly and indirectly affected stakeholders; and,
- Comprehensive documentation of the study process in compliance with Phases 1 and 2 of the Municipal Class EA planning process.

By completing the Municipal Class EA planning process, the preferred solution should address environmental, social and technical concerns and be acceptable to the majority of stakeholders.

### 1.3 Study Area

The study area is located in the southeastern portion of the City of Hamilton and is within both the urban and rural areas of the City. The study area is generally bounded by Golf Club Road and Dickenson Road East to the south; Hendershot Road to the east; Mud Street East, Isaac Brock Drive, Gordon Drummond Avenue, Paramount Drive / Stone Church Road in the north; and Mount Albion Trail / TransCanada Trail to the west.

The study area consists of residential and commercial land use for areas within the urban boundary and largely active agricultural land uses in the rural area. The study area includes parts of Red Hill Business Park area. The study area is located within both the Hamilton Conservation Authority and Niagara Peninsula Conservation Authority jurisdictions. Felkers Creek, Hannon Creek, Sinkhole Creek and Twenty Mile Creek traverse the study area. **Figure 1-1** shows the study area.



**Figure 1-1 Study Area**

## 1.4 Municipal Class Environmental Assessment Planning Process

This study follows the Municipal Engineers Association (MEA) Municipal Class EA Planning process for Schedule “B” projects. This Project File completes Phases 1 and 2 of the Class EA process. Background information including governing legislation, details regarding this process, and next steps are provided in the sections below.

### 1.4.1 Environmental Assessment Act

The *Environmental Assessment Act (EA Act)* passed by the Ontario government in 1975, requires proponents (owners) to review and document the potential environmental impact of any major project or activity prior to construction. The purpose of the *Act* is to “provide for the protection, conservation, and wise management of Ontario’s environment”. The *Act* broadly defines the environment as:

- Air, land or water;
- Plant and animal life, including human life;
- The social, economic and cultural conditions that influence the life of humans or a community;
- Any building, structure, machine or other device or thing made by humans;
- Any solid, liquid, gas, odour, heat, sound, vibration or radiation resulting directly or indirectly from human activities; or,

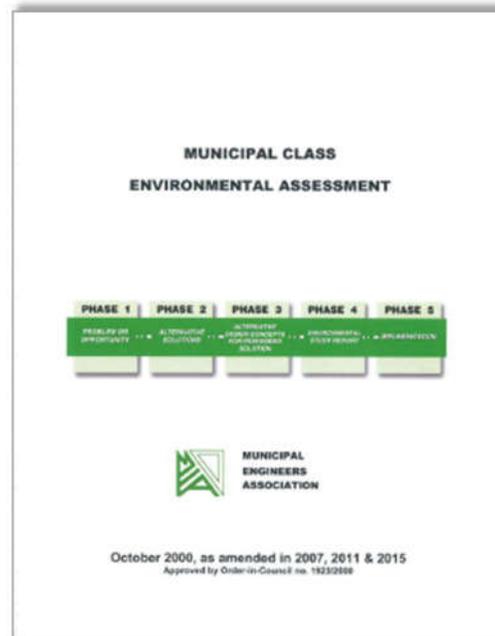
- Any part or combination of the foregoing and the interrelationships between any two or more of them.

The *Act* applies to any major public sector project and designated private sector projects that have the potential for significant environmental effects. All municipalities in Ontario, including the City of Hamilton, are subject to the provisions of the *Act* and its requirements to conduct an EA for applicable projects.

#### 1.4.2 Overview of the Municipal Class Environmental Assessment

The MEA “Municipal Class Environmental Assessment” document (October 2000, as amended in 2007, 2011 & 2015) outlines a planning process, approved under the *EA Act*, for municipal projects having a predictable range of environmental impacts and applicable mitigation measures. As shown in **Figure 1-2**, this planning process includes the following five phases:

- **Phase 1: Problem or opportunity identification**, including the issue to be addressed and the rationale behind the problem or opportunity;
- **Phase 2: Identification of alternative solutions** and in turn the preferred solution to the problem or opportunity, taking into consideration the existing environment and public and review agency input;
- **Phase 3: Identification of alternative design concepts** for the preferred solution, taking into consideration the anticipated environmental effects, methods of minimizing negative effects and maximizing positive effects, and public and review agency input;
- **Phase 4: Documentation** of the planning and consultation process through Class EA Phases 1 through 3 in an Environmental Study Report (ESR) which is then made available for scrutiny by the public and review agencies; and,
- **Phase 5: Implementation** as documented in the ESR, including completion of detailed design, construction contract drawings and documentation, construction and monitoring for adherence to the environmental provisions and commitments made in the ESR and contract documents.



This PD7 EWSF and pumping station Municipal Class EA addresses Phases 1 and 2 of the Class EA planning process as per the Schedule B requirements further described below.

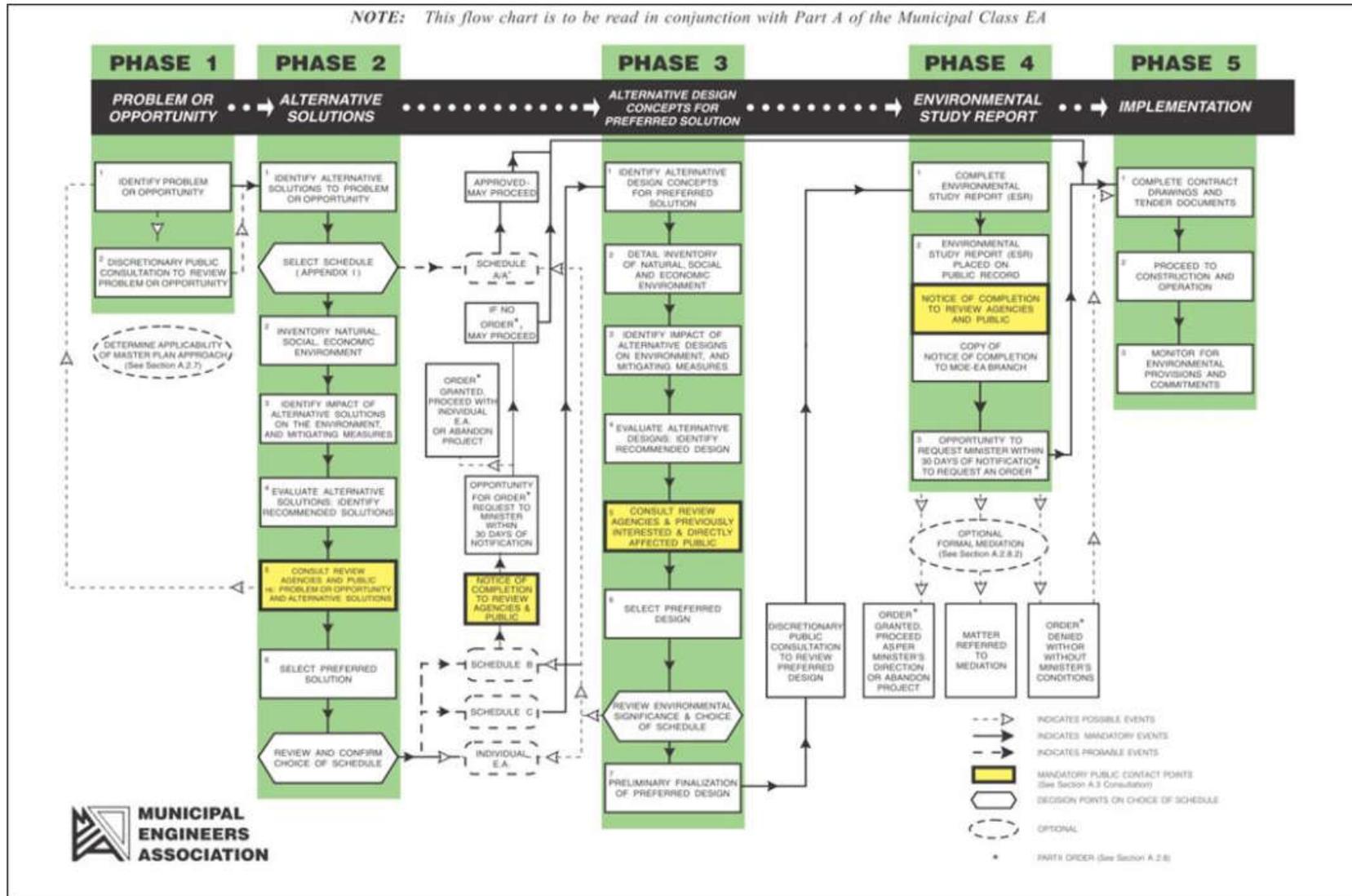


Figure 1-2 Overview of the Municipal Class EA Planning Process (MEA 2015)

#### 1.4.2.1 Class EA Project Classification

Projects subject to the Municipal Class EA process are classified into one of four types or “schedules” depending on the anticipated level of environmental impact and for some projects, the anticipated construction costs. The four schedules include:

- **Schedule A:** These projects are limited in scale, have minimal adverse environmental effects and include normal or emergency maintenance and operations procedures. For example, increasing pumping station capacity by adding or replacing equipment where new equipment is located within an existing building or structure and replace / expand existing water storage facilities provided all such facilities are either in an existing road allowance or an existing utility corridor or where no land acquisition is required are classified as a Schedule A projects. All Schedule A projects are pre-approved and do not require any planning or public consultation under the Class EA process;
- **Schedule A+:** These projects are also pre-approved and do not require any planning under the Class EA process. However, the proponent is required to inform the public via some type of public notification (typically a letter, newspaper notice or website posting) prior to construction or implementation. For example, extending, establishing or enlarging a new water distribution system provided all facilities are located within an existing right of way including the use of trenchless construction for watercourse crossings is classified as a Schedule A+ projects;
- **Schedule B:** These projects have the potential for some adverse environmental effects. As such, the proponent is required to proceed through Phases 1 and 2 of the Municipal Class EA process, including consultation with those who may be affected. Schedule B projects generally include minor expansions or improvements to existing facilities. At the completion of Class EA Phase 2, a Project File is prepared to document the planning process and made available for public and agency review for a period of 30-calendar days. If a concern is raised that cannot be resolved, an individual or agency may request a Part II Order (see **Section 1.6** below). Alternatively, the proponent may elect to voluntarily plan the project as a Schedule C undertaking; and,
- **Schedule C:** These projects have the potential for significant adverse environmental effects and must proceed through Class EA Phases 1 to 4, including consultation. Schedule C projects typically include siting and construction of new facilities such as water or wastewater treatment plants, and major expansions to existing facilities. At the completion of Class EA Phase 3, an Environmental Study Report (ESR) is prepared to document the planning process, including the evaluation of alternatives and alternative design concepts. Similar to Schedule B projects, the ESR must be made available for public and agency review and a Part II Order may be requested.

For this project, establishment of a new water storage facility and increased pumping station capacity where equipment is located in a new building triggers the need for a Schedule B Class EA. As such, this study carries out the requirements for Phases 1 and 2 of the Class EA planning process.

**Figure 1-2** provides an overview of the Municipal Class EA planning process.

#### 1.4.2.2 Class EA Planning Principles

The planning process outlined by the MEA Class EA document was followed. The process reflects the following five key principles of environmental planning made under the *EA Act*:

- **Consultation with affected parties.** Consultation with a range of potentially affected stakeholders, including the public, government review agencies and First Nations and Métis, is an integral part of the planning process and should begin early. Its purpose is to identify concerns and allow them to be addressed cooperatively before final decisions are made;
- **Consideration of a reasonable range of alternatives.** Different “alternatives to” the undertaking and for Schedule C projects, “alternative methods” of implementing the preferred solution, must be considered, including the “do nothing” alternative;
- **Identification and consideration of the impacts of each alternative on all aspects of the environment.** The potential impacts of each alternative must be considered, including both adverse effects and benefits on the natural, social, cultural and economic environments;
- **Systematic evaluation of alternatives in terms of their advantages and disadvantages to determine the net environmental effects.** Net environmental effects are the effects that remain after mitigating measures have been applied; and,
- **Provision of clear and complete documentation of the planning process to allow traceability of decision-making with respect to the project.** The documentation is then made available for public review and scrutiny.

By following these planning principals, possible environmental impacts are taken into account before project implementation. This allows the prevention of environmental damage through good planning and decision-making.

#### 1.4.2.3 Communications and Consultation

Consultation with a range of stakeholders was undertaken throughout the Municipal Class EA planning process. A variety of communications strategies were used, including newspaper notices, written correspondence, postings on the City’s website, two Public Information Centres, which were held in conjunction with the City’s Elfrida Growth Area Study & Subwatershed Study as the study areas of the two studies overlap. Individual stakeholder meetings were also held throughout the study. Consultation with Indigenous communities was also conducted at key points throughout the study to ensure their interests and historical connections in the area were respected. Communications were conducted by mail, phone, and/or email. Details of the communications and consultation program are discussed in **Section 7**. A summary of the comments and questions received from the public, agencies, and First Nations representatives during the Class EA process is provided in **Table 7-1** and **Table 7-2**. Copies of the actual written correspondence received from agencies and the public (confidential information redacted) are provided in **Appendix I**.

### 1.5 Public Review of this Report and Next Steps

This Project File completes the planning stages for a Schedule B Municipal Class EA as required under the MEA Class EA process. This report is now being made available for public and agency review for a period of 30-calendar days. Interested parties are encouraged to review this report and provide comments to one of the study team representatives listed below:

**Shelley Kuan, P.Eng.**  
**Consultant Project Manager**  
Cole Engineering Group Ltd.  
70 Valleywood Drive  
Markham, ON L3R 4T5  
P: 905-940-6161, ext. 371  
E: skuan@coleengineering.ca

**Winston Wang, P.Eng.**  
**Project Manager**  
City of Hamilton, Public Works Department  
77 James Street North, Suite 400  
Hamilton, ON L8R 2K3  
P: 905-546-2424 ext. 4092  
E: winston.wang@hamilton.ca

## 1.6 Part II Order Requests

In the event that concerns cannot be resolved through discussion with study team representatives, individuals may make a “bump-up” request to the Minister of the Environment, Conservation and Parks (MECP) to determine if a bump-up to a Schedule C Municipal Class EA or an Individual EA is required. As of July 1, 2018, a standardized form is to be used by anyone who believes that the environmental assessment process was incomplete, incorrect in that it failed to follow the required process. The form can be found on the Forms Repository website (<http://www.forms.ssb.gov.on.ca>) by searching “Part II Order” or “012-2206E” (the form ID number). Once completed, the form is then to be sent to both the Minister and Director of the Environmental Assessment and Permissions Branch. Their addresses are:

Minister  
Ministry of the Environment, Conservation and Parks  
777 Bay Street, 5<sup>th</sup> Floor  
Toronto ON M7A 2J3  
[Minister.mecp@ontario.ca](mailto:Minister.mecp@ontario.ca)

Director, Environmental Assessment and Permissions Branch  
Ministry of the Environment, Conservation and Parks  
135 St. Clair Ave. West, 1<sup>st</sup> Floor  
Toronto, ON M4V 1P5  
[MOECCpermissions@ontario.ca](mailto:MOECCpermissions@ontario.ca)

If the Minister agrees with the request, the project will be subject to Part II of the *EA Act*. If the Minister disagrees with the request, the project is considered to have met the requirements of the Class EA and may proceed to detailed design and construction. Alternatively, the Minister may impose additional conditions which must be met.

A copy of the request should also be forwarded to one of the study team representatives listed above. If no Part II Order requests are received by the end of the 30-calendar day review period, the project is considered to have met the requirements of the MEA Class EA and may proceed to design and construction as outlined in this report.

Information will be collected in accordance with the *Municipal Freedom of Information and Protection of Privacy Act* and the *Access to Information Act*. With the exception of personal information, all comments will become part of the public record.

## 2 Legislative and Policy Considerations

As with all municipalities in Ontario, the City of Hamilton must operate according to the planning frameworks established by senior levels of government. Among other administrative, legislative and financial frameworks, this includes policies and legislation by the federal government and the Province of Ontario. In addition, the *Planning Act* requires that municipalities such as the City of Hamilton prepare their own Official Plans to govern land use. The following sections discuss the applicable legislation and relevant planning policies considered as part of this study.

### 2.1 Federal Legislation

The following provides details regarding federal legislation relevant to this study, including the *Canadian Environment Assessment Act*, *Fisheries Act*, *Migratory Birds Convention Act* and the *Species at Risk Act*.

#### 2.1.1 Canadian Environmental Assessment Act

The *Canadian Environmental Assessment Act* (2012) focuses federal environmental reviews on projects which have the potential to cause significant adverse environmental effects in areas of federal jurisdiction. For the *Act* to apply, the proposed project must be designated under the “Regulations Designating Physical Activities” and specifically be listed in the “Schedule for Physical Activities”. Review of the Schedule for Physical Activities shows there is no physical activity that matches the work for the proposed construction of the EWSF or pumping station. Therefore, meeting the requirements of the *Canadian Environmental Assessment Act* will not be necessary for this project.

#### 2.1.2 Fisheries Act

The purpose of Canada’s Fisheries Act (1985, last amended 2016) is to maintain healthy, sustainable and productive fisheries through the prevention of pollution and the protection of fish and their habitat. Proponents are responsible for determining if the project is likely to cause impacts or serious harm to fish and if these impacts can be avoided or mitigated. Serious harm to fish is defined as “the death of fish or any permanent alteration to, or destruction of, fish habitat”. If it is determined the impacts cannot be avoided or mitigated and will result in serious harm to fish, an application for authorization must be submitted to Fisheries and Oceans Canada. Projects having the potential to obstruct fish passage or affect flows needed by fish also require authorization.

Given that there are watercourses within the study area, this project could have the potential to impact fish or fish habitat and an application for authorization under the Fisheries Act may be required. The potential of this project to affect fish or fish habitat is further discussed in **Section 4.1.5**.

#### 2.1.3 Migratory Birds Convention Act

Canada seasonally hosts approximately 450 species of native birds, the majority of which are protected under the *Migratory Birds Convention Act* (1994) and are collectively referred to as “migratory birds”. It is the responsibility of Environment Canada to develop and implement policies and regulations to ensure the protection of migratory birds, their eggs and their nests. The *Act* provides for the protection of migratory birds through the Migratory Birds Regulations and the Migratory Birds Sanctuary Regulations. The *Species at Risk Act* also protects some species of migratory birds on private or provincially-owned lands and waters. The hunting of migrating game birds is managed through the amendments of the Migratory Game Bird Hunting Regulations and established according to national objectives and guidelines. Further to **Section 4.1.6**, there is minimal potential of this project to affect migratory birds.

### 2.1.4 Species at Risk Act

At the federal level, Species at Risk (SAR) designations are initially determined by the Committee on the Status of Endangered Wildlife in Canada. If approved by the federal Minister of the Environment, species are added to the federal “List of Wildlife Species at Risk” in Schedule 1 of the *Species at Risk Act* through designation in one of the following risk categories:

- Extirpated – lives somewhere in the world, and at one time lived in the wild in Ontario, but no longer lives in the wild in Ontario;
- Endangered – lives in the wild in Ontario but is facing imminent extinction or extirpation;
- Threatened – lives in the wild in Ontario, is not endangered, but is likely to become endangered if steps are not taken to address factors threatening it; or,
- Special Concern – lives in the wild in Ontario, is not endangered or threatened, but may become threatened or endangered due to a combination of biological characteristics and identified threats.

On federal lands, the *Act* affords protection to all species listed in Schedule 1 as extirpated, endangered or threatened. On private or provincially-owned lands and waters, migratory birds and aquatic species listed on Schedule 1 as endangered, threatened or extirpated species are protected under the *Act*.

Further to **Section 4.1.6**, there is minimal potential for this project to affect SAR.

## 2.2 Provincial Policies and Legislation

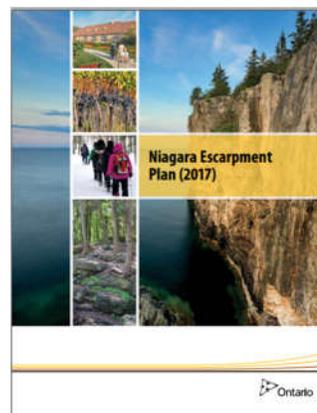
There are a number of provincial policies and legislation that apply to this study including the Niagara Escarpment Plan (NEP), Greenbelt Plan, Provincial Policy Statement, *Endangered Species Act*, and *Conservation Authorities Act* as the study area is within the jurisdiction of both the Niagara Peninsula Conservation Authority (NPCA) and Hamilton Conservation Authority (HCA) and the *Ontario Heritage Act*.

### 2.2.1 Niagara Escarpment Plan

The *Niagara Escarpment Planning and Development Act* established a planning process to ensure that the Niagara Escarpment area is protected. As a result of this Act, the NEP was originally approved on June 12, 1985. Since then, there have been a number of revisions and updated with the most recent NEP 2017 being approved on June 1, 2017.

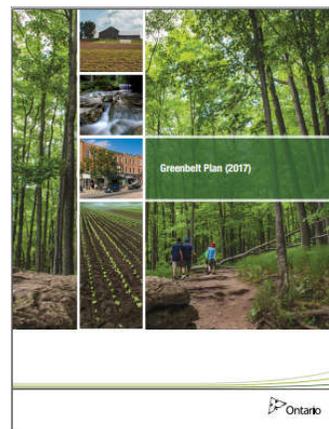
The NEP outlines objectives and policies relating to development, preservation and enjoyment of the Niagara Escarpment. The NEP designates a small area north of Rymal Road, in between Dartnall Road and Glover Road as Escarpment Protection Area and Public Land. Map 10 of the NEP illustrates this area as being within the Niagara Escarpment Parks and Open Space System, Mount Albion Conservation Area.

Based on review of the NEP, the proposed EWSF and PS alternative sites are not located within the NEP area.



### 2.2.2 Greenbelt Plan

The *Greenbelt Act* (2005) resulted in the Greenbelt Plan (Ministry of Municipal Affairs and Housing, 2005, amended in 2017). The Greenbelt is a broad band of permanently protected land which supports agriculture as its predominant land use. The Greenbelt Plan designates a small part of the study area, south of Golf Club Road, and east of Trinity Church Road, as Protected Countryside. The policies for the Protected Countryside outlined in the Greenbelt Plan “support for which achieves the social and economic aims of the Greenbelt and the Growth Plan and improves integration with land use planning while seeking to minimize environmental impacts” and “provision for the availability and sustainable use of those resources critical to the region’s social, environmental, economic and growth needs”.



Based on the above policy, the project will not contravene the Protected Countryside policies.

### 2.2.3 Provincial Policy Statement

The Provincial Policy Statement (PPS) (2014) provides direction to municipalities on matters related to land use planning and development. Policy 1.6 of the PPS provides direction to municipalities regarding water services. Key policies state that infrastructure “shall be provided in a coordinated, efficient and cost-effective manner that considers impacts from climate change while accommodating projected needs”. Policies 1.6.3 and 1.6.4 state that the use of existing infrastructure should be optimized before consideration is given to developing new infrastructure, and infrastructure should be strategically located to support effective and efficient delivery of emergency management services. With respect to water specifically, key sections of Policy 1.6.6 state that planning for water services shall:

- Direct and accommodate expected growth or development in a manner that promotes the efficient use and optimization of existing i) municipal water services, and ii) private communal water services, where municipal services are not available;
- Ensure that these systems are provided in a manner that: i) can be sustained by the water resources upon which such services rely, ii) is feasible, financially viable and complies with all regulatory requirements, and iii) protects human health and the natural environment;
- Promote water conservation and water use efficiency; and,
- Integrate servicing and land use considerations at all stages of the planning process.

Policy 2.0 provides direction regarding the protection and management of natural heritage features and resources. The PPS defines the following natural heritage features and provides planning policies for each, including:

- Significant wetlands and coastal wetlands – designated by the Ministry of Natural Resources and Forestry (MNRF) and/or the municipality;
- Significant woodlands – identified using criteria established by the MNRF;
- Significant valleylands – the responsibility of the municipality or other planning authority, in this case the NPCA and HCA;

- Significant wildlife habitat of endangered or threatened species – determined in accordance with provincial and federal requirements;
- Areas of Natural and Scientific Interest (ANSIs) – the responsibility of the municipality or other planning authority, in this case the NPCA and HCA; and,
- Fish habitat – governed by Fisheries and Oceans Canada.

Each of these features is afforded varying levels of protection subject to guidelines, and in some cases, regulations, further discussed below.

**Relevance to the Study:** One of the stated purposes of the study is to ensure that the present level of service is maintained, and future needs can be achieved. Additionally, the purpose of this study was to select a preferred solution through environmentally sound planning for the protection of the environment. The above policies were considered in the evaluation of alternatives.

#### 2.2.4 Endangered Species Act

The provincial *Endangered Species Act* was put in place to protect and recover plants and animals and their habitat that are at risk of disappearing from Ontario. The status of SAR in Ontario is initially determined by the Committee on the Status of Species at Risk in Ontario. Species are added under the *Act* if approved by the MNRF. The *Act* prohibits the killing or harming of endangered or threatened species and also affords protection to their habitat. Species classified as special concern do not receive these protections. The MNRF may allow activities that would otherwise be prohibited under the *Endangered Species Act* through its permitting or authorizations process.

#### 2.2.5 Conservation Authorities Act

The purpose of the *Conservation Authorities Act* is to ensure the conservation, restoration and responsible management of water, land and natural habitat through programs that balance human, environmental and economic needs. The *Act* authorizes the formation of Conservation Authorities, including the NPCA and HCA. The NPCA and HCA regulates hazard lands within their respective jurisdiction, including creeks, valleylands, shorelines, and wetlands under Ontario Regulation 155/06 and Ontario Regulation 161/06, respectively. It also regulates areas within 120m of all provincially significant wetlands, wetlands greater than 2 ha in area, and areas within 30m of wetlands less than 2ha in size where development could interfere with the hydrologic function of the feature. Development and/or associated infrastructure may be permitted within regulated areas subject to conformity with Official Plans, completion of appropriate studies and NPCA / HCA permits, as applicable. The NPCA / HCA generally requires that all watercourses be protected from adjacent development, typically through the use of a vegetative buffer.

#### 2.2.6 Clean Water Act

The *Clean Water Act* (2006) mandates the protection of drinking water resources, particularly through the formation of Source Protection Committees. These Source Protection Committees were tasked with completing assessment reports to delineate wellheads and Intake Protection Zones around municipal water sources. The study area partially falls within the plan jurisdiction of the Niagara Peninsula Source Water Protection Area and the Hamilton Region Source Water Protection Area but is not located within an Intake Protection Zone where the Source Protection Plan Policies apply. However, as further discussed in **Section 4.1.3**, the study area contains Significant Groundwater Recharge Areas and Highly Vulnerable Aquifers.

### 2.2.7 Ontario Heritage Act

The *Ontario Heritage Act* came into effect in 1975 to protect heritage properties and archaeological sites within Ontario. A cultural heritage assessment and a Stage 1 archaeological assessment have been completed to determine the potential impacts the project may have on heritage resources. This is further discussed in **Section 4.2**

### 2.3 Urban Hamilton Official Plan

Volume 1, Chapter C, Policy 3.2.1 (b) (Urban Area General Provisions (Policies)) permits the following uses in all land use designations: “utilities, municipal infrastructure and transportation facilities, corridors and easements, electrical facilities use directly for the generation and distribution of electric power, natural gas and oil pipeline lines, telecommunication and new facilities approved under relevant statutes, where land(s) are less than 4 hectares in size, provided that the facility is not used for the purpose of maintenance, storage or railway yard”.

Volume 1, Chapter C, Policy 5.3.12 states that “water and wastewater systems shall be designed and constructed in accordance with the specifications and standards of the City, provincial guidelines and other applicable standards, regulations and guidelines”.

Volume 1, Chapter C, Policy 5.3.14 states that “expansion of water and wastewater systems within the urban area shall be in accordance with the Water and Wastewater Master Plan and Staging of Development Plan as well as supporting the City’s density and intensification targets as detailed in Section A.2.3.3 – Other Targets and B.2.4 – Residential Intensification”.

### 2.4 Elfrida Growth Area Study

The City is currently completing the Elfrida Growth Area Study. The study area was previously identified through the 2006 Growth Related Integrated Development Strategy (GRIDS) process as the preferred location to accommodate future growth to 2031 and beyond.

### 2.5 Rural Hamilton Official Plan

Volume 1, Chapter C, Policy 3.1.1(c) of the Rural Hamilton Official Plan states “municipal infrastructure such as water system facilities, sanitary and stormwater facilities, except for sanitary landfill sites, shall be permitted in all land use designations located in Rural Hamilton and shall comply with the policies of Sections C.3.4, Utilities and C.5., Infrastructure of this Plan. Where facilities exist, they shall be designated Utilities on Schedule D – Rural Land Use Designations and the maps for Rural Settlement Areas in Volume 2 of this Plan”.

Volume 1, Chapter C, Policy 5.3.6 of the Rural Official Plan states “water and wastewater systems shall be designed and constructed in accordance with the specifications and standards of the City, provincial guidelines and all other applicable standards, regulations and guidelines”.

**Relevance to Study:** The above was considered in the evaluation of alternatives.

### 3 Problem / Opportunity Statement

Phase 1 of the Municipal Class EA planning process defines the starting point for any Class EA as the “Problem/Opportunity Statement”. This statement assists in defining the scope of the project and serves as its central theme and integrating element. In developing the Problem / Opportunity Statement for this Class EA, the following key points were considered:

- The 2006 City of Hamilton Water and Wastewater Master Plan identified the need for an EWSF for security of supply and balancing purposes and additional pumping capacity;
- PD7 currently does not have floating storage for balancing, emergency or fire purposes;
- PD7 is undergoing significant development and has been identified as the preferred area for urban boundary expansion to meet Provincial 2031 growth forecasts;
- Water supply for PD7 is currently supplied from an existing booster pumping station located on Highland Road, which receives water either directly from PD5 watermains or through a reservoir filled from PD5;
- The Provincial Policy Statement (2014) mandates municipalities ensure necessary infrastructure are or will be available to meet current and projected needs;
- Section 1.6.6.1 of the Provincial Policy Statement (2014) states that “planning for sewage and water services shall direct and accommodate expected growth or development in a manner that promotes the efficient use and optimization of existing municipal sewage systems and municipal water systems”;
- The Growth Plan for the Greater Golden Horseshoe (2017) explains that municipal water and wastewater systems will be planned, designed, constructed or expanded accordingly so that the system will serve growth in a manner that supports achievement of the minimum intensification and density targets in this plan; and,
- As per the Proposed Growth Plan for the Greater Golden Horseshoe (2017), the City of Hamilton 2031 population is estimated to be 680,000 and employment is estimated to be 310,000.

Considering the above listed points, the Problem or Opportunity Statement for the PD7 Elevated Water Storage Facility and Pumping Station Class EA is defined as follows:

*A solution is required to provide additional storage and pumping capacity to support the future growth within PD7 and PD23, to enhance water system security and reliability, and to meet the MECP guidelines and City design standards, while improving system operating efficiencies.*

In accordance with the requirements of the MEA Municipal Class EA planning process for Schedule B projects (as previously described in **Section 1.4**), the City of Hamilton initiated this Municipal Class EA to identify and evaluate alternative solutions to address this Problem / Opportunity Statement.

## 4 Existing Conditions

### 4.1 Natural Environment

Consideration of the natural environment typically includes landforms and soils (geology), groundwater (hydrogeology), terrestrial vegetation such as significant woodlands, wetlands, Environmentally Sensitive Areas (ESAs) and Areas of Natural and Scientific Interest (ANSI), wildlife and habitat, Species at Risk (SAR), surface water and fisheries, and the connections provided by or between these resources. Natural environment features specific to this study are summarized in the subsections below.

#### 4.1.1 Physiography, Topography and Geology

The study area is located within the physiographical regions of the Haldimand Clay Plain comprised of till moraines and clay plains and it is generally covered with fine-textured glaciolacustrine deposits, till, and Paleozoic bedrock. The bedrock at the study area consists of Lower Silurian sandstone, shale, dolostone and siltstone. The study area is relatively flat and gently slopes towards the north direction, with the elevations changing from 200m to 210m (above sea level).

#### 4.1.2 Geotechnical

A desktop geotechnical and hydrogeological study was undertaken by GeoPro Consulting Limited. Based on the review of the available information, the local surficial geology information and the site reconnaissance, the subsurface conditions at the sites are anticipated to consist of mainly cohesive nature of deposits (clay, sandy silt to clayey silt, till) over bedrock at shallow to moderate depths. The bedrock is mainly in dolostone formation. Based on the borehole data from previous reports, bedrock is expected at depths ranging from approximately 1.4m to 6.6m below the prevailing grade, corresponding elevations ranging from approximately Elev. 206.8m to Elev. 194.4m along the middle one-third (Rymal Road East to Twenty Road East) vicinity of west end of the study area; bedrock is expected at depths ranging from approximately 1.3m to 6.5m below the prevailing grade, corresponding elevations ranging from approximately Elev. 204.4m to Elev. 178.7m along the vicinity of entire north boundary of the study area. Bedrock coring indicated that the bedrock would be sound at or below approximately 0.5m of weathered zone along the Nebo Road north of Twenty Road East. Based on the variation of the bedrock depths encountered in the boreholes, bedrock depth is expected to vary greatly in some locations.

For additional information, refer to **Appendix C** for the Geotechnical and Hydrogeological Desktop Study.

#### 4.1.3 Hydrogeology

The desktop study conducted by GeoPro Consulting Limited, indicated groundwater may be encountered at variable depths. It also indicated presence of relatively cohesive nature of deposits over bedrock. Subject to the extent and thickness of the shallow cohesionless silty / sandy deposits, as well as silty / sandy seams in cohesive deposits and the groundwater tables, the groundwater control should be handled by conventional sump pumping within shallow depths of excavation. However, for deep excavations extending to the interface of overburden and bedrock and depending on presence of non-cohesive soils and prevailing groundwater tables, a rigorous positive groundwater control measures, such as deep wells and well points may be considered.

For additional information, refer to **Appendix C** for the Geotechnical and Hydrogeological Desktop Study.

#### 4.1.4 Terrestrial Environment

The alternative sites and adjacent lands consist primarily of agricultural land. According to Schedule B of the Urban Hamilton Official Plan and Schedule B of the Rural Hamilton Official Plan, the alternative sites and adjacent lands are not part of the City of Hamilton's Natural Heritage System. Furthermore, there are no significant woodlands or Environmentally Significant Areas (ESAs) within the alternative sites or adjacent lands.

None of the Ecological Land Classification (ELC) communities within the alternative site or adjacent lands consist of sensitive vegetation communities. ELC communities of potential interest include the following:

- Aquafor Beech (2018) identifies the woodland adjacent to PS Site 1 (ELC Unit B4) as a potential ESA and a potential linkage feature;
- Several small wetlands are present within the following alternative sites and/or adjacent lands;
  - PS Site 1: ELC Units B2 and B5;
  - PS Site 2: ELC Unit A5; and,
  - EWSF Site 4: ELC Unit E3.
- Part of the Eramosa Karst Earth Science Area of Natural and Scientific Interest (ANSI) is located north of EWSF Site 2 (within ELC Unit C1); and,
- PS Site 3 is located within an area identified as "Buried Eramosa Escarpment" by the Urban Hamilton Official Plan (Trinity West Secondary Plan).

None of the plant species identified during the 2018 botanical inventory are designated SAR, and all of the native plant species have an NHIC S-Rank of S4 (apparently secure) or S5 (secure). One species considered uncommon in the City of Hamilton was found in the wetland within PS Site 1, namely Necklace Sedge (*Carex projecta*).

COLE biologists completed breeding bird surveys and recorded a total of 39 bird species, including two species at risk (SAR); Barn Swallow (*Hirundo rustica*) and Eastern Wood-pewee (*Contopus virens*). Both SAR bird species appear to be breeding outside of the alternative sites and adjacent lands as they do not provide suitable breeding habitat for these species. However, it should be noted that there is a suspected nesting colony of Barn Swallows on the property located between PS Site 1 and PS Site 2.

For additional information, refer to **Appendix F** for the Natural Environment Assessment report completed by COLE.

#### 4.1.5 Aquatic Features and Fisheries

There are headwater drainage features within the study area, as a result, this project has the potential to impact fish habitat or downstream fish populations and an application for authorization under the Fisheries Act, 1985 may be required. In order to determine whether this authorization is required, a DFO Self-Assessment should be completed by an aquatic biologist.

For additional information, refer to **Appendix F** for the Natural Environment Assessment report completed by COLE.

#### 4.1.6 Significant Wildlife Habitat and Species at Risk

The study area is dominated by lands under cultivation and culturally influenced vegetation communities, and their potential to function as Significant Wildlife Habitat (SWH) is further constrained by adjacent urban land uses. While many of the ELC units within the alternative sites and adjacent lands contain features that may function as wildlife habitat, few of these features meet the criteria of SWH as defined by the MNR (2000) and/or MNRF (2015). There were five SWH identified in the report as potentially present including, bat hibernacula, bat maternity colony, reptile hibernacula, amphibian woodland breeding habitat, and amphibian wetland breeding habitat. There was one (1) SWH confirmed present including special concern and rare wildlife habitat on PS Site 1.

As previously mentioned, three SAR were identified in the project area: Barn Swallow, Eastern Woodpecker and Monarch. There is minimal potential for this project to affect SAR.

For additional information, refer to **Appendix F** for the Natural Environment Assessment report completed by COLE.

## 4.2 Cultural Environment

The cultural environment includes archaeological and cultural heritage resources. The following sections summarize the Stage 1 archaeological assessment and the Cultural Heritage Resource Assessment (CHRA).

### 4.2.1 Archaeological Resources

Archaeological Services Inc. completed a Stage 1 Archaeological and Cultural Heritage Resource Assessment (**Appendix D**). The objective of the Stage 1 assessment was to determine the presence or absence of known archaeological sites in the study area and in proximity to the alternative sites for the proposed PD7 EWSF and PS and to identify the need for Stage 2 archaeological assessments for areas identified during the Stage 1 assessment as having potential archaeological planning concerns. The findings are as follows:

- EWSF Sites 1, 2 and 5: There are potential for archaeological resources. A Stage 2 archaeological assessment is required if this site is selected;
- EWSF Sites 3 and 4: Have been subject to Stage 2 survey and there are no further archaeological concerns;
- PS Sites 1 and 2: There are potential for archaeological resources. A Stage 2 archaeological assessment is required if either site is selected; and,
- PS Site 3: Has been subject to Stage 2 survey and there are no further archaeological concerns.

### 4.2.2 Cultural Heritage Resources

Cultural Heritage Resources include both above ground-built heritage resources and cultural heritage landscapes. Built heritage resources are generally individual buildings or structures associated with a variety of human activities such as historical settlement or patterns of architectural development. Generally, buildings or structures that are more than 40-years old may have heritage value. A cultural heritage landscape is a collection of individual built heritage resources and other related features that together form farm complexes, roadscape and nucleated settlements.

Archaeological Services Inc. completed the cultural heritage resource assessment. The objective is to present a built heritage and cultural landscape inventory of cultural heritage resources, identify existing conditions of the study area, identify impacts to cultural heritage resources, and propose appropriate mitigation measures. The findings area as follows:

- EWSF Site 1: Potential negative impact to CHL 2 (406 Fletcher Road). A Heritage Impact Assessment is required if this site is selected;
- EWSF Site 3: Potential impact to BHR 2 (420 Trinity Church Road). At the time of site visit, this building was inaccessible, as such, a Heritage Impact Assessment is required if this site is selected;
- EWSF Sites 2, 4 and 5: No negative impacts to identified cultural heritage resources. No further concern regarding cultural heritage resources; and,
- PS Sites 1, 2 and 3: No negative impacts to identified cultural heritage resources. No further concern regarding cultural heritage resources.

For additional information, refer to **Appendix E** for the Cultural Heritage Resource Assessment: Built Heritage and Cultural Heritage Landscapes report completed by Archaeological Services Inc.

### 4.3 Socio-Economic Environment

The socio-economic environment includes land uses, transportation network within the study area as well as future servicing considerations.

#### 4.3.1 Existing Land Uses

Schedule E-1 of the Urban Hamilton Official Plan (Nov 2018) designates a portion of the study area as being within the Hamilton urban area. Land use designations within the study area include Business Park, Arterial Commercial, District Commercial, Mixed Use - Medium Density, Neighbourhoods, Institutional and Open Space. Schedule D of the Rural Hamilton Official Plan (March 2012) designates the majority of the study area as agriculture with a small area designated as rural and open space. **Figure 4-1** illustrates the existing land uses within the study area.

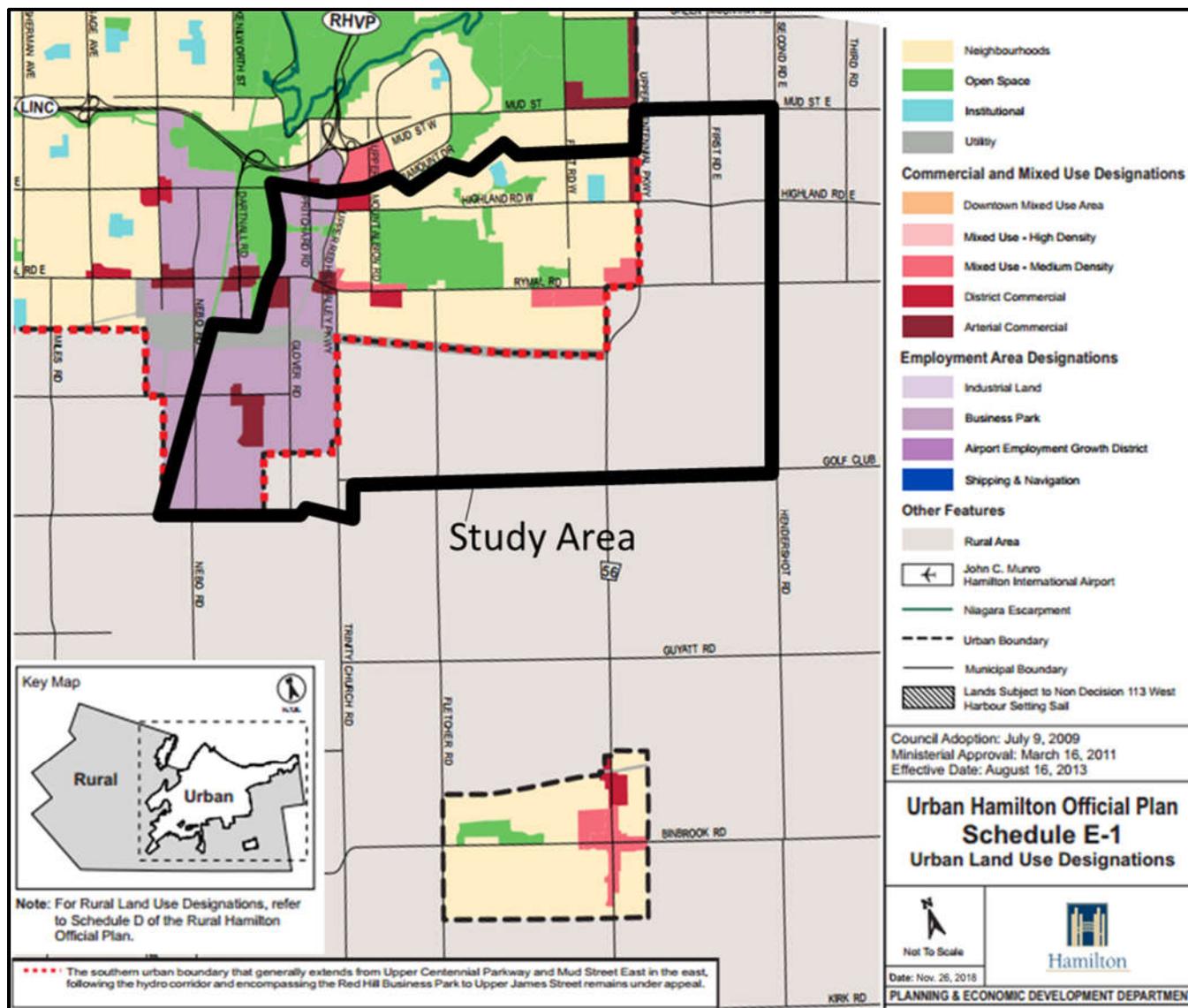
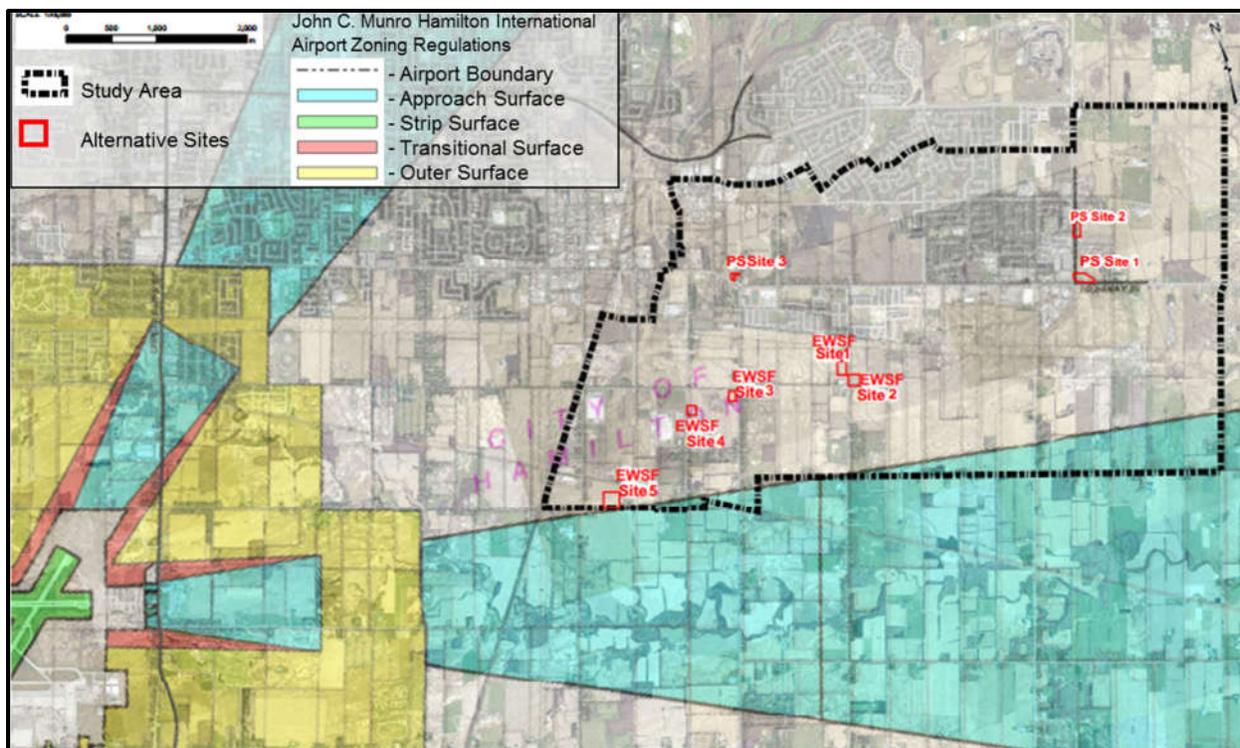


Figure 4-1 Existing Land Uses

### 4.3.2 Proximity to International Airport

Due to the proximity of the study area to the John C. Munro Hamilton International Airport, if the proposed elevated water facility is constructed NAV CANADA should be consulted as permits may be required. Figure 4-2 illustrates the Airport Zoning Regulation Area with the alternative sites. EWSF site 5 is near the boundary of the Airport Zoning Regulation area and the Hamilton International Airport requests further information on the Site 5 to conduct further analysis on the proposed EWSF Site 5, if it becomes the preferred ESWF site.



**Figure 4-2 Alternative Sites and Airport Zoning Overlay**

### 4.3.3 Transportation Network

There are no major highways that traverse the study area, but the Lincoln Alexander Parkway is located northwest of the study area. Regional Road 20 (Upper Centennial Parkway) runs east-west and is a continuation of Rymal Road. Regional Road 56 runs north-south through the study area. All other roads within the study area are local roads.

The western boundary of the study area is the TransCanada Trail. This section of the TransCanada is known as the Chippewa Rail Trail. The Chippewa Rail Trail is 15km in length and is part of an abandoned rail corridor that links Hamilton to Caledonia. Activities on the trail include walking, hiking, cycling, horseback riding and cross country skiing<sup>1</sup>.

## 4.4 Technical

The following sections describe the current infrastructure and hydraulic analysis.

### 4.4.1 Current Infrastructure

PD7 is supplied from an existing Highland Pumping Station (HD007), which receives supply from PD5 or the Highland Road Reservoir (HDR07). The PD7 currently functions as a closed system as no floating storage exists within PD7. **Figure 4-3** shows the existing PD7.

<sup>1</sup> [www.thegreattrail.ca/explore-the-map/](http://www.thegreattrail.ca/explore-the-map/)

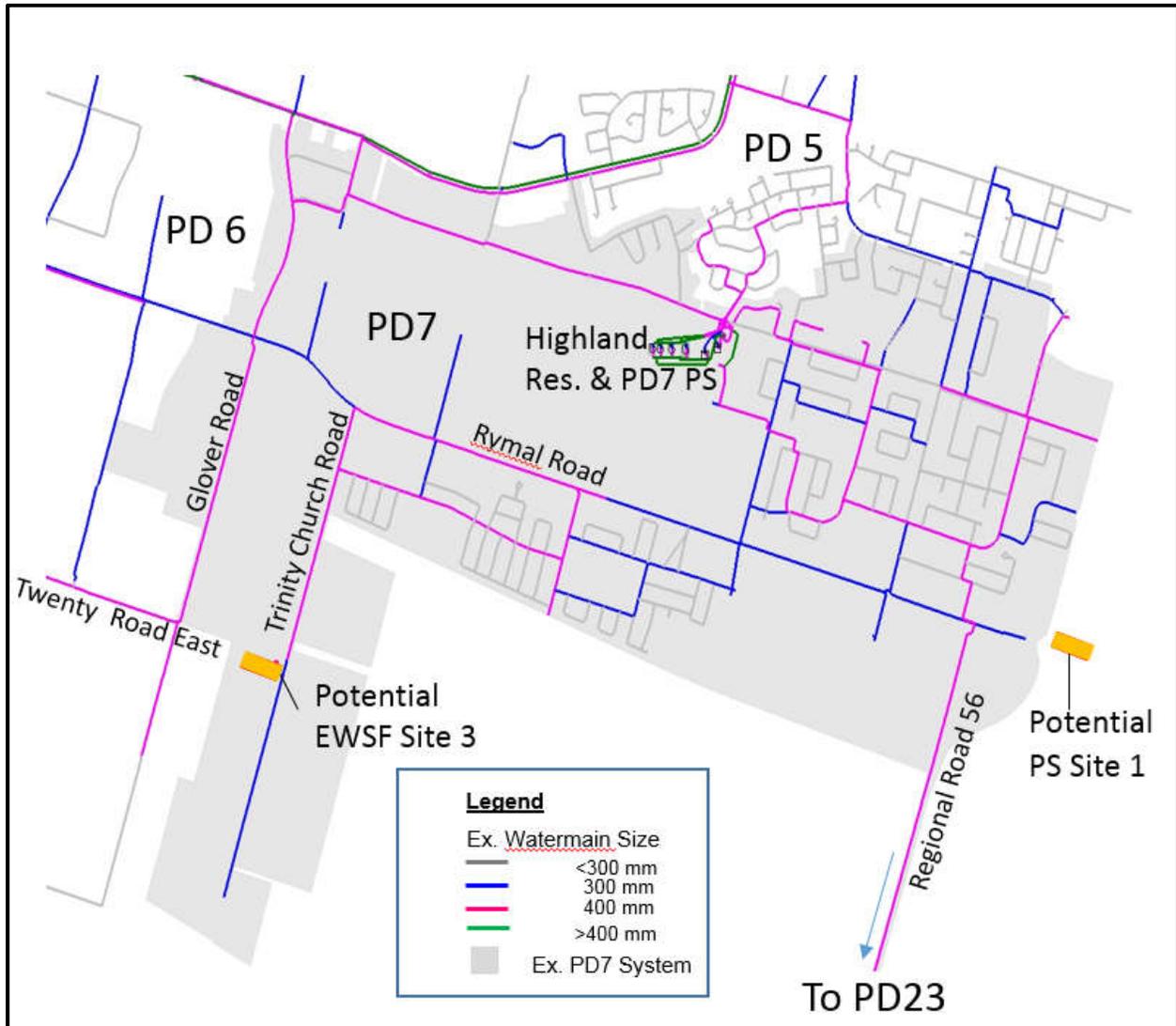


Figure 4-3 Current PD7 Water System

#### 4.4.2 System Capacity Requirement

A hydraulic analysis (Technical memorandum No. 1 (TM1) was completed by COLE in August 2019. PD7 is supplied from the existing Highland Pumping Station (43.2ML/d), which receives water from the Highland Road Reservoir (11.4 ML) in PD5. PD23 receives water from PD7 via Binbrook Pumping Station (6.5ML/d). PD7 currently functions as a closed system as there is no floating storage. The hydraulic analysis reviewed water demand, fire flow, system pressure, water storage, watermain sizes, and pumping station capacity and standby power supply.

The hydraulic analysis recommended the following system needs:

- 2021 growth considerations – An EWSF with a minimum storage capacity of 9.4ML is required. Based on discussions with City staff on March 19, 2018, a larger sized PD7 EWSF (e.g. 9.9ML) and/or possibly more than one EWSF may be considered to provide system operation flexibility. This is to be confirmed as part of the current Master Planning Study and/or detailed design. The scope of this Class EA is to select the preferred locations for one EWSF and one PS. For the purpose of the EA assignment, the larger size storage facility (9.9ML) is carried forward into the evaluation; and,
- 2031 growth considerations – Install a new PD7 pumping station. Additional pumping capacity of 60.3ML/d is required for PD7 prior to 2031. The required capacity will be confirmed as part of the current Master Planning Study and/or detailed design.

For additional information, refer to Technical Memo No. 1 Hydraulic Analysis.

## 5 Alternative Elevated Water Storage Facility Sites

The Municipal Class EA process recognizes that there are different ways of solving a particular problem and requires that various alternative solutions be considered. The following sections describe the identification and evaluation of alternative EWSF sites for the study area.

### 5.1 Identification of Alternative Elevated Water Storage Facility Sites

The Municipal Class EA process requires the consideration of the “do nothing” alternative as a comparative benchmark for other alternatives. This option essentially maintains status quo. To address the Problem / Opportunity Statement, five alternatives were identified including building a new EWSF at the following sites:

- EWSF Site 1 - Lot 7, Con. 1, Block 5, Binbrook Twp;
- EWSF Site 2- Lot 5, Con. 1, Block 4, Binbrook Twp;
- EWSF Site 3 - 420 Trinity Church Road;
- EWSF Site 4 - 399 Glover Road; and,
- EWSF Site 5 - Lot 14, Con. 2, Glanford Twp.

Figure 5-1 shows the locations of alternative EWSF sites.

### 5.2 Evaluation of Alternative Elevated Water Storage Facility Sites

Taking the previously described existing environment into consideration, the alternative elevated water storage facility sites were comparatively evaluated to consider the suitability of each. The evaluation used a descriptive or qualitative assessment, based on a set of evaluation criteria developed to address the following broad definition of the environment as described in the *EA Act*:

- Natural Environment – having regard for protecting the natural and physical components of the environment (e.g., air, land, water and biota);
- Social / Cultural Environment – having regard for residents, neighbourhoods, businesses, community character, social cohesion, community features & land uses, property requirements, historical / archaeological resources, and heritage features;
- Economic Environment – having regard for the cost implications associated with the alternative sites; and,
- Technical Environment – having regard for the constructability, operability and potential conflicts as well as other engineering aspects associated with the alternative sites.

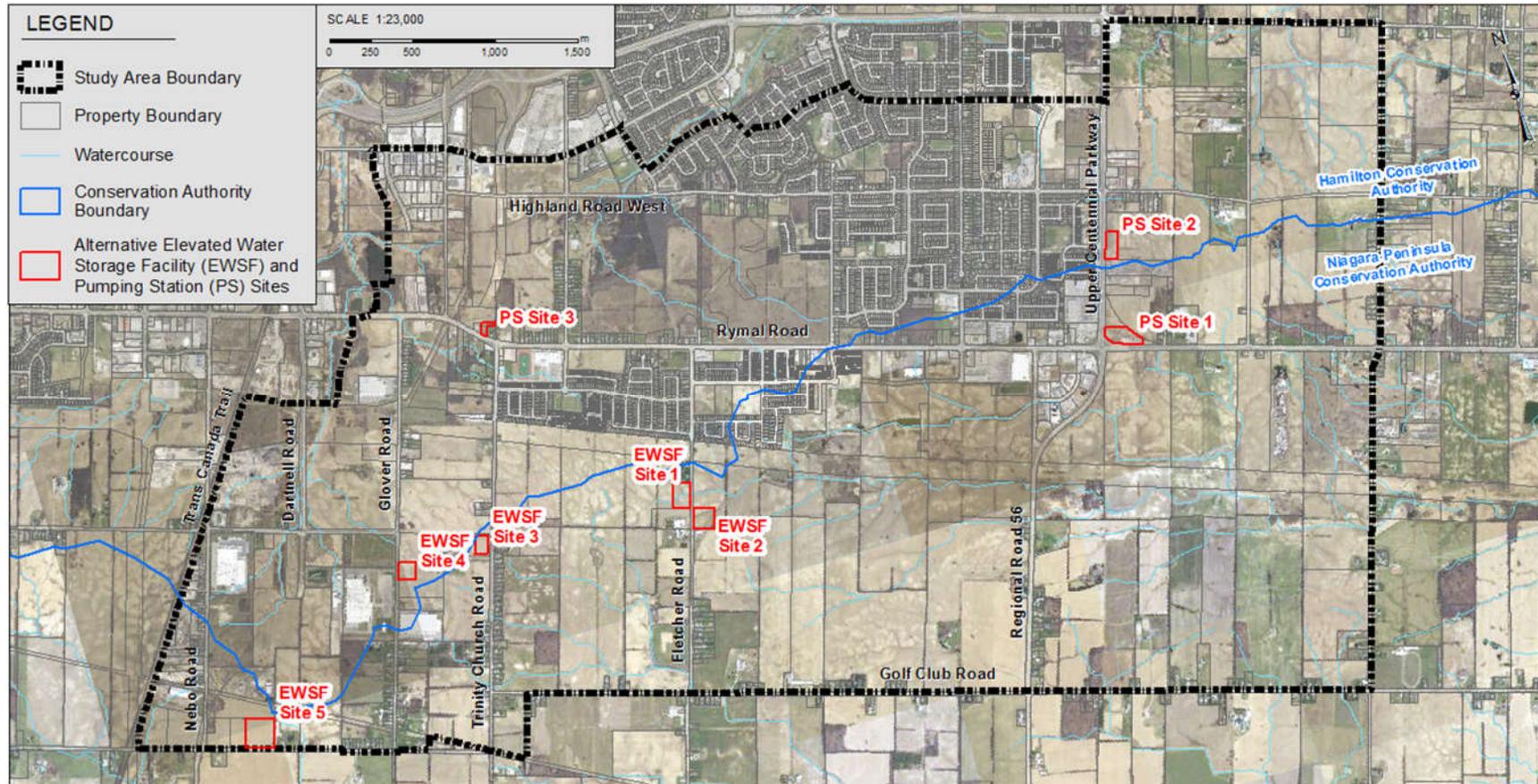


Figure 5-1 Alternative Elevated Water Storage Facility Sites and Pump Station Sites

To evaluate the alternative EWSF sites, each of the evaluation criteria as presented in **Table 5.1** were assessed in a descriptive manner. A numerical or weighted ranking system was not used; instead, the evaluation concentrated on the strengths and weaknesses of each alternative to identify the best possible solution. While set weightings of criteria were not specifically assigned, all evaluation criteria are not necessarily equal, and professional judgement and knowledge of the area and issues were used to determine preferences. For each criterion and for each possible alternative, the potential effects on the environment (natural, social, etc.) were identified. The selection of the preferred siting option is based on the relative advantages and disadvantages of environmental effects.

The ranking of each alternative site relative to the specific evaluation criteria is shown using a colour coding system comprised of green, yellow and red, designed to be indicative of most preferred (green) to the least preferred (red). The comparison of each criterion was made horizontally between the alternatives (i.e., within a category such as natural environment) and then vertically between categories to derive the preferred site. Based on the relative advantages or disadvantages of the net environmental effects, including the results of applying mitigating measures, the alternative siting option which demonstrated the greatest number of “most preferred” boxes and/or the fewest “least preferred” boxes was identified as the preferred site.

The evaluation of alternative EWSF sites is presented in the following **Table 5.1**.

### 5.3 Preferred Elevated Water Storage Facility Site

Based on the evaluation of alternatives, the preferred EWSF site is EWSF Site 3. Rationale for this site is as follows:

- Locate outside the green belt area and Niagara Escarpment boundary and floodplains;
- Consider property acquisition requirements;
- Preferred 60m x 100m site area with good road access - smaller sites are feasible, but require specific consideration of access, grades, trees, overhead restrictions, adjacent land use and existing facilities, etc.;
- Proximity to existing watermain infrastructure;
- Lowest aesthetic impact on existing residents and customers;
- Minimum natural / heritage / environmental impacts;
- Optimum distribution system hydraulics to provide adequate capacity;
- Top water elevation of EWSF of around 265m;
- Look for local high ground area (minimum overall tank height); and,
- Away from John C. Munro Hamilton International Airport Zoning Regulation areas.

**Table 5.1 Evaluation of Alternative Elevated Water Storage Facility Sites**

Evaluation Criteria		Alternative Elevated Water Storage Facility (EWSF) Sites				
		EWSF Site 1	EWSF Site 2	EWSF Site 3	EWSF Site 4	EWSF Site 5
Terrestrial Environment	Potential Impacts within Alternative Options	Site access may require tree removal along Fletcher Road. An Arborist Report will be required if this site is selected.  Barn Swallow were observed foraging over EWSF Site 1. No impacts are anticipated to foraging Barn Swallow.	Site access may require tree removal along Fletcher Road. An Arborist Report will be required if this site is selected.  Barn Swallow were observed foraging over EWSF Site 2. No impacts are anticipated to foraging Barn Swallow.	Site access may require tree removal from the hedgerows bordering EWSF Site 3 to the north and south and/or along Trinity Church Road. An Arborist Report will be required if this site is selected.  Barn Swallow were observed foraging over EWSF Site 3. No impacts are anticipated to foraging Barn Swallow.  Hawthorn was identified within ELC Unit D8, but could not be identified to species due to a lack of key identifying features; thus, the local status ( <i>i.e.</i> , locally uncommon or rare) could not be determined. If this site is selected and the proposed site plan requires hedgerow removal, a spring botanical survey should be completed to identify the species.	No potential impacts.	Site access may require tree removal along Dickenson Road East. An Arborist Report will be required if this site is selected.  Tree removal has the potential to impact breeding birds, therefore any tree removals should be completed outside of the breeding bird timing window (March 15–August 31).
	Potential Impacts within Adjacent Lands	The Eramosa Karst Earth Science ANSI is located approximately 150 m north of EWSF Site 1. EWFS construction would have no impact on this ANSI.	The Eramosa Karst Earth Science ANSI is located approximately 50 m north of EWSF Site 2. EWFS construction would have no impact on this ANSI.	No potential impacts.	A small wetland (ELC Unit E3) is present immediately north of EWSF Site 4. An Erosion and Sediment Control Plan will be required if this site is selected.	No potential impacts.
Aquatic Environment	Potential Impacts within Alternative Options	Portions of two headwater drainage features of Hannon Creek run through EWSF Site 1. An Erosion and Sediment Control Plan will be required if this site is selected	Portions of three headwater drainage features of Hannon Creek run through EWSF Site 2. An Erosion and Sediment Control Plan will be required if this site is selected.	None. No surface water features are present within EWSF Site 3.	None. No surface water features are present within EWSF Site 4.	None. No surface water features are present within EWSF Site 5
	Potential Impacts within Adjacent Lands	Portions of two headwater drainage features of Hannon Creek run through the lands adjacent to EWSF Site 1. An Erosion and Sediment Control Plan will be required if this site is selected.	Portions of four headwater drainage features of Hannon Creek run through the lands adjacent to EWSF Site 2. An Erosion and Sediment Control Plan will be required if this site is selected.	Portions of two headwater drainage features of Hannon Creek and three headwater drainage features of Twenty Mile Creek run through lands adjacent to EWSF Site 3. An Erosion and Sediment Control Plan will be required if this site is selected.	Portions of three headwater drainage features of Hannon Creek run through lands adjacent to EWSF Site 4. These features contribute surface flow to a downstream “Core Area” of karst features, including a major sinkpoint located approximately 100 m south of Rymal Road East. If this site is selected, further assessment would be required to identify appropriate design measures to minimize impacts on karst features. An Erosion and Sediment Control Plan will be required if this site is selected.	None. No surface water features are present adjacent to EWSF Site 5.

Evaluation Criteria		Alternative Elevated Water Storage Facility (EWSF) Sites				
		EWSF Site 1	EWSF Site 2	EWSF Site 3	EWSF Site 4	EWSF Site 5
Social/Cultural Environment	Potential for Noise, Traffic, Dust Impacts Disrupting Surrounding Area during Construction	Medium, near residential Areas	Medium, near residential Areas	Low, South of 20th Road	Low, South of 20 <sup>th</sup> Road	Low, South of 20 <sup>th</sup> Road
	Proximity to Archaeological Resources	Potential for archaeological resources. A Stage 2 Archaeological Assessment is required.	Potential for archaeological resources. A Stage 2 Archaeological Assessment is required.	No archaeological concern	No archaeological concern	Potential for archaeological resources. A Stage 2 Archaeological Assessment is required.
	Proximity Cultural Heritage Resources	Potential negative impact to CHL 2 (406 Fletcher Road). A heritage impact assessment is required.	No negative impacts to identified cultural heritage resources.	Potential impact to BHR 2 (420 Trinity Church Road). At the time of site visit, this building was inaccessible, as such, a Heritage Impact Assessment is required if this site is selected.	No negative impacts to identified cultural heritage resources	No negative impacts to identified cultural heritage resources
	Proximity to C. Munro Hamilton International Airport Zoning Regulation Areas	2 km away from the Airport Zoning Regulation areas	2 km away from the Airport Zoning Regulation areas	2 km away from the Airport Zoning Regulation areas	1.7 km away from the Airport Zoning Regulation areas	Near boundary of Airport Zoning Regulation areas
	Land Ownership	Privately owned	Privately owned	Owned by the City	Privately owned	Privately owned
Financial	Estimated Capital Costs Including Land Acquisition	\$13.3 M	\$13.3 M	\$12.5 M	\$13.3 M	13.6 M
Technical	Tower Height	50 m	49 m	47 m	47m	49 m
	Ability to Coordinate with Planned Infrastructure Improvements	Most preferred location. Located within PD7 system. Within Elfrida Growth Area. A short distance from the existing watermain along Fletcher Road North.	Most preferred location. Located within PD7 system. Within Elfrida Growth Area. A short distance from the existing watermain along Fletcher Road North.	Most preferred Location. Located within PD7 system. In close proximity to Elfrida Growth Area and the existing watermain along Trinity Church Road.	Less preferred location. Located within PD6 system and away from Elfrida Growth Area. Requirement of PD7 watermain connection (within PD6 system), which may not be re-used to support future growth in the area.	The site is the least preferred location. Located within PD6 system and away from Elfrida Growth Area. Requirement of the longest PD7 watermain connection (within PD6 system), which may not be re-used to support future growth in the area.
	Constructability and Site Access	Accessible by minor arterial road Fletcher Road North	Accessible by minor arterial road Fletcher Road North	Accessible by minor arterial road Trinity Church Road	Accessible by minor arterial road Fletcher Road North	Accessible by minor arterial road Fletcher Road North
	System Reliability and Hydraulic Performance	Most preferred hydraulically. Highest pressures in PD7 when operated under gravity.	Most preferred hydraulically. Highest pressures in PD7 when operated under gravity.	Most preferred hydraulically. Highest pressures in PD7 when operated under gravity.	Less preferred hydraulically due to the distance to the demand centre results in greater pressure losses.	This site is the least preferred hydraulically due to the distance to the demand centre results in the greatest pressure losses.
Summary		Portions of two headwater drainage features of Hannon Creek run through this site, Barn Swallows were observed foraging over the site and construction may require the removal of trees. Medium impact during construction. Potential for archaeological resources. Potential negative impact to Cultural Heritage	Portions of three headwater drainage features of Hannon Creek run through this site, Barn Swallows were observed foraging over the site and construction may require the removal of trees. Medium impact during construction. Potential for archaeological resources. No negative impacts to identified	No surface water features are present within this site, Barn Swallows were observed foraging over the site and construction may require tree removal from the hedgerows bordering. The site is away from major residential areas and will have low construction impact. No archaeological concern.	A small wetland is present immediately north of the site but no surface water features are present onsite. Away from major residential areas and will have low construction impact. No archaeological concern. No negative impacts to identified cultural heritage resources. Away from boundary of Airport Zoning	No surface water features are present within this site. Away from major residential areas and will have low construction impact. Potential for archaeological resources. No negative impacts to identified cultural heritage resources. Located beside boundary of Airport Zoning Regulation areas. Privately owned.

Evaluation Criteria	Alternative Elevated Water Storage Facility (EWSF) Sites				
	EWSF Site 1	EWSF Site 2	EWSF Site 3	EWSF Site 4	EWSF Site 5
	Resources. Away from boundary of Airport Zoning Regulation areas. Privately owned. Tank is required to be taller due to lower ground elevation. Ability to coordinate with planned infrastructure improvements. Most preferred hydraulically.	cultural heritage resources. Away from boundary of Airport Zoning Regulation areas. Privately owned. Tank is required to be taller due to lower ground elevation. Ability to coordinate with planned infrastructure improvements. Most preferred hydraulically.	Potential negative impact to Cultural Heritage Resources. Away from boundary of Airport Zoning Regulation areas. Owned by City. Reduced Tank height. Ability to coordinate with planned infrastructure improvements. Reduced costs. Most preferred hydraulically.	Regulation areas. Privately owned. Reduced Tank height. Away from urban area, less ability to coordinate with planned infrastructure improvements. Less preferred hydraulically.	Tank is required to be taller due to lower ground elevation. Away from urban area, less ability to coordinate with planned infrastructure improvements. Least preferred hydraulically and location.

## 5.4 Elevated Water Storage Facility Conceptual Design Overview

The following section outlines the conceptual design of the proposed EWSF. For additional information, refer to **Appendix B** for Technical Memorandum No. 2 Conceptual Design Report.

### 5.4.1 Design Criteria

- Tank volume: 9.9ML;
- Tank diameter: 32m;
- Pedestal diameter: 17m; and,
- Tank height: 47m.

### 5.4.2 Estimated Capital Cost

A conceptual construction cost estimate for the elevated water storage facility is presented in **Table 5.2**.

**Table 5.2 Conceptual Cost Estimates for Elevated Water Storage Facility**

Scope	Amount (\$Million)
Elevated Water Storage Facility (9.9ML)	\$5.5
Rechlorination and Recirculation System	\$0.2
Process and Electrical Works	\$0.8
Site Works	\$0.5
Watermain Extension	\$0.3
Engineering (10% of construction costs)	\$0.7
City's Internal Resources / Staffing (10% of the sum of construction and engineering costs)	\$0.8
Land Acquisition (Land owned by the City)	\$0.5
Utility and Testing Allowances	\$0.3
Sub-total Cost	\$9.6
Contingency (30%)*	\$2.9
<b>Estimated Total</b>	<b>\$12.5</b>

\*A contingency of 30% is also included in this cost.

## 5.5 Elevated Water Storage Facility Mitigation Measures

Construction of the EWSF is likely to result in some negative impacts. In most cases, however, potential impacts will be limited to the period of construction and are considered manageable with the appropriate mitigation measures. Mitigation involves the application of appropriate measures to eliminate or reduce the negative impacts to ensure that any disturbances are managed by best available methods (e.g., restoration of areas disturbed during construction is considered mitigation).

The following mitigation measures outlined in **Table 5.3** are recommended to ensure that any short term and long-term disturbances are managed by best available methods. These measures will be confirmed and further defined during detailed design.

**Table 5.3 Elevated Water Storage Facility Mitigation Measures**

Potential Impact / Consideration	Mitigation
<b>Natural Environment</b>	
Tree and vegetation removal	<ul style="list-style-type: none"> <li>All trees to be retained shall be clearly marked by an Arborist.</li> <li>Establish tree protection (hoarding) prior to construction.</li> <li>Replace all trees / vegetation that has been removed.</li> <li>Remove any trees outside of the migratory bird nesting season (October 31 to March 31).</li> <li>Restore disturbed areas / habitat to existing or better conditions.</li> </ul>
Groundwater Management	<ul style="list-style-type: none"> <li>Detailed hydrogeological investigations will be undertaken during detailed design to confirm dewatering requirements.</li> <li>Obtain Permit to Take Water (PTTW) or apply for an Environmental Activity Sector Registry (EASR) based on dewatering requirements.</li> </ul>
Erosion and Sedimentation Control (ESC)	<ul style="list-style-type: none"> <li>Prepare and implement an ESC plan based on the ESC Guideline for Urban Construction (Greater Golden Horseshoe Area Conservation Authorities, 2017).</li> <li>The ESC plan should include details regarding the location and protection of proposed stockpile areas.</li> <li>Ensure onsite monitoring of ESC during and after wet weather events.</li> <li>Areas disturbed by construction will be restored and stabilized as soon as practically possible.</li> </ul>
Contamination of Soils through Spills and Leaks	<ul style="list-style-type: none"> <li>Prepare and implement a Spills Management Plan.</li> <li>The plan should include a list of materials and instructions regarding their use, emergency contact numbers, and the MECP Spills Action Centre contract information.</li> <li>Educate contract personnel on the Spills Management Plan.</li> </ul>
Waste Disposal	<ul style="list-style-type: none"> <li>All waste generated during construction activity will receive proper disposal as per MECP requirements.</li> <li>Any contaminated soil disposal shall be consistent with Part XV.1 of the <i>Environmental Protection Act</i> and the Record of Site Condition Regulation (O.Reg 153/04).</li> </ul>
<b>Social / Cultural Environment</b>	
Noise / Vibration / Dust Control	<ul style="list-style-type: none"> <li>Construction to take place during normal working hours and comply with the City's noise by-law.</li> <li>Dust control through the use of non-chloride dust suppressants and/or water spraying/street sweeping.</li> <li>For potential air quality issues associated with construction vehicle exhaust fumes, emission control devices should be in good working order.</li> </ul>

**Table 5.3 Elevated Water Storage Facility Mitigation Measures**

Potential Impact / Consideration	Mitigation
	<ul style="list-style-type: none"> <li>New or well-maintained heavy equipment and machinery should be used, with muffler / exhaust baffles and engine covers.</li> <li>Complete pre-condition surveys on adjacent building structures.</li> </ul>
Long-term Noise/Lighting/Visual Barrier Plan	<ul style="list-style-type: none"> <li>Provide a landscape and/or mitigation measure plan for noise (if required), lighting, and visual barrier plan (e.g., landscapes, trees or others) to minimize the lighting and visual impact on the neighbouring environment during design stage.</li> </ul>
Archaeological and Cultural Heritage Resources	<ul style="list-style-type: none"> <li>Potential impact to 420 Trinity Church Road. At the time of site visit, this building was inaccessible, as such, a Heritage Impact Assessment is required if this site is selected.</li> <li>Should archaeological resources be discovered during construction, they may be subject to Section 48(1) of the <i>Ontario Heritage Act</i>. If this occurs, the contractor should stop work immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork in compliance with Section 48(1) of the <i>Ontario Heritage Act</i>. Additionally, the <i>Funeral and Cremation Services Act</i> (2002, c.33) requires that any person discovering or having knowledge of a burial site shall immediately notify the police or coroner. It is recommended that the Registrar of Cemeteries at the Ministry of Consumer Services is also immediately notified.</li> </ul>
Private Property Access	<ul style="list-style-type: none"> <li>Confine all construction activities to the working areas.</li> <li>The contractor will not be allowed to enter or occupy any private property without written permission from the landowner and a copy provided to the Region.</li> </ul>
Traffic Management	<ul style="list-style-type: none"> <li>Disruptions to traffic should be restricted to off-peak hours.</li> <li>Advanced notification of traffic disruptions should be provided in addition to the use of signs to direct motorists.</li> </ul>
Proximity to John C. Munro Hamilton International Airport	<ul style="list-style-type: none"> <li>Submit proposal to Transport Canada and NAV to ensure the structure meets lighting requirements and flight procedures are not impacted.</li> <li>Fill out Transport Canada Aeronautical Assessment for Obstruction Evaluation Form and a Land Use submission form.</li> </ul>

## 6 Alternative Pumping Station Sites

The following section describes the identification and evaluation of alternative pumping station sites for this project.

### 6.1 Identification of Alternative Pumping Station Sites

In addition to the above noted five alternative EWSF sites, three alternative PS sites were identified and include:

- PS Site 1 - Lot 24, Con. 8, Saltfleet Twp, northeast corner of Rymal Road East and Upper Centennial Parkway intersection;
- PS Site 2 - Lot 24, Con. 8, Saltfleet Twp, east side of Upper Centennial Parkway across from Highgate Drive; and,
- PS Site 3 - 1645 Rymal Road East and north side of Rymal Road east.

**Figure 5-1** shows the locations of alternative PS sites

### 6.2 Evaluation of Alternative Pumping Station Sites

Taking the previously described existing environment into consideration, the alternative pumping station sites were comparatively evaluated to consider the suitability of each. The evaluation used a descriptive or qualitative assessment, based on a set of evaluation criteria developed to address the following broad definition of the environment as described in the *EA Act*:

- Natural Environment – having regard for protecting the natural and physical components of the environment (e.g., air, land, water and biota);
- Social / Cultural Environment – having regard for residents, neighbourhoods, businesses, community character, social cohesion, community features & land uses, property requirements, historical / archaeological resources, and heritage features;
- Economic Environment – having regard for the cost implications associated with the alternative sites; and,
- Technical Environment – having regard for the constructability, operability and potential conflicts as well as other engineering aspects associated with the alternative sites.

To evaluate the alternative pumping station sites, each of the evaluation criteria as presented in **Table 6.1** were assessed in a descriptive manner. A numerical or weighted ranking system was not used; instead, the evaluation concentrated on the strengths and weaknesses of each alternative to identify the best possible solution. While set weightings of criteria were not specifically assigned, all evaluation criteria are not necessarily equal, and professional judgement and knowledge of the area and issues were used to determine preferences. For each criterion and for each possible alternative, the potential effects on the environment (natural, social, etc.) were identified. The selection of the preferred siting option is based on the relative advantages and disadvantages of environmental effects.

The ranking of each alternative site relative to the specific evaluation criteria was shown using a colour coding system comprised of green, yellow and red, designed to be indicative of most preferred (green) to the least preferred (red). The comparison of each criterion was made horizontally between the alternatives (i.e., within a category such as natural environment) and then vertically between categories

to derive the preferred site. Based on the relative advantages or disadvantages of the net environmental effects, including the results of applying mitigating measures, the alternative siting option which demonstrated the greatest number of “most preferred” boxes and/or the fewest “least preferred” boxes was identified as the preferred site.

The evaluation of alternative pumping station sites is presented in **Table 6.1**.

### 6.3 Preferred Pumping Station Site

Based on the evaluation of alternatives, the preferred pumping station site is PS Site 1. Rationale for this site is as follows:

- Located outside the Greenbelt Plan area and Niagara Escarpment boundary and floodplains;
- No property acquisition requirements;
- Preferred 60 m x 100 m site area with good road access- Smaller sites are feasible, but require specific consideration of access, grades, trees, overhead restrictions, adjacent land use and existing facilities, etc.;
- Proximity to existing watermain infrastructure;
- Lowest aesthetic impact on existing residents and customers;
- Natural / heritage / environmental impacts were identified; however, these can be mitigated;
- Optimum distribution system hydraulics to provide adequate capacity; and,
- Additional Criteria and Constraints for Site Selection of pumping station.

### 6.4 Pumping Station Conceptual Design

The following sections outline the conceptual design of the proposed Pumping Station. For additional information, refer to **Appendix B** for Technical Memo #2 Conceptual Design Report.

#### 6.4.1 Design Criteria

- Pump firm capacity: 60.3ML/d with Total Dynamic Head (TDH) range from 31m to 49m, and rated TDH of 40m. It is suggested to install four pumps (three pumps online and one standby) - to be confirmed during current master plan and/or detailed design; and,
- Standby power: The maximum load scenario for PS operation using standby power is described as;
  - Pumping firm capacity;
  - Any emergency equipment is operating;
  - All other essential loads are running, such as control and instrumentation; and,
  - 25% spare capacity will be required.

#### 6.4.2 Estimated Capital Cost

A conceptual construction cost estimate in 2018 dollars for the proposed pumping is presented in the **Table 6.2**.

**Table 6.1 Evaluation of Alternative Pumping Station Sites**

Evaluation Criteria		Alternative Pumping Station Sites		
		Pumping Station Site 1	Pumping Station Site 2	Pumping Station Site 3
Terrestrial Environment	Potential Impacts within Alternative Options	<p>A small wetland (ELC Unit B2) is present within PS Site 1. This wetland contains Necklace Sedge, an uncommon species in the City of Hamilton. Wetlands and their 30 m buffers are protected under Hamilton’s Official Plan. If construction is proposed within 50 m of this wetland, additional study is required to determine mitigation measures and whether the wetland buffer can be refined. If construction is proposed within 30 m of this wetland, a permit from NPCA will be required per Ontario Regulation 155/06. An Erosion and Sediment Control Plan will be required for this site.</p> <p>Several Monarch were observed foraging within PS Site 1; candidate SWH includes ELC Units B1 and B2. Monarch foraging habitat is diverse, therefore construction within PS Site 1 would have negligible impacts on foraging Monarch.</p> <p>Barn Swallow were observed foraging over PS Site 1. Potential impacts to foraging Barn Swallow would be proportional to the extent of removal of natural vegetation that supports insects, particularly ELC Unit B2.</p> <p>Hawthorn was identified within ELC Unit B1, but could not be identified to species due to a lack of key identifying features; thus, the local status (<i>i.e.</i>, locally uncommon or rare) could not be determined. If this site is selected and the proposed site plan requires shrub removal, a spring botanical survey should be completed to identify the species.</p>	<p>Barn Swallow were observed foraging over PS Site 2. Potential impacts to foraging Barn Swallow would be proportional to the extent of removal of natural vegetation that supports insects, particularly ELC Unit As.</p>	<p>PS Site 3 is located within an area identified by the Trinity West Secondary Plan as “Buried Eramosa Escarpment” – an area of karstic bedrock covered by shallow soil. If this site is selected, further assessment would be required to identify appropriate design measures to minimize impacts on karst features.</p> <p>Tree removal may be required to accommodate the proposed PS. The Site contains trees with the potential to support bat maternity colonies. An Arborist Report and bat habitat assessment would be required if this site is selected.</p>
	Potential Impacts within Adjacent Lands	<p>A woodland (ELC Unit B4) is located 100 m to the east and a wetland (ELC Unit B5) is located 30 m to the south of PS Site 1. Aquafor Beech (2018) identifies the woodland as a potential ESA and a potential linkage feature. Construction of the PS within PS Site 1 would have negligible impacts on these features. An Erosion and Sediment Control Plan will be required if this site is selected.</p> <p>Several Monarch were observed foraging within PS Site 1; potential SWH includes ELC Units B5, B6 and B9. Given the widespread occurrence of Milkweed, construction of the PS within PS Site 1 would have negligible impacts on foraging Monarch.</p> <p>A colony of nesting Barn Swallows is thought to be located within the property located between PS Site 1 and PS Site 2. The removal of ELC Unit B2 could remove a source of mud for nest construction. Otherwise, construction of the PS within PS Site 1 would have negligible impacts on this Barn Swallow nesting habitat.</p>	<p>A wetland (ELC Unit A5) is present approximately 100 m north of PS Site 2. An Erosion and Sediment Control Plan will be required if this site is selected.</p> <p>A colony of nesting Barn Swallows is thought to be located within the property located between PS Site 1 and PS Site 2. Construction of the PS within PS Site 2 would have negligible impacts on this Barn Swallow nesting habitat.</p>	<p>No potential impacts. Adjacent lands have been urbanized or are currently under development.</p>
Aquatic Environ	Potential Impacts within Alternative Options	<p>None. No surface water features are present within PS Site 1.</p>	<p>A portion of a headwater drainage feature of Stoney Creek runs through PS Site 2. An Erosion and Sediment Control</p>	<p>No potential impacts. Adjacent lands have been urbanized or are currently under development.</p>

Evaluation Criteria		Alternative Pumping Station Sites		
		Pumping Station Site 1	Pumping Station Site 2	Pumping Station Site 3
			Plan will be required if this site is selected.	A small, unmapped watercourse with two karst sinkpoints is located approximately 300 m north of PS Site 3. If this Site is selected, further assessment would be required to identify appropriate design measures to minimize impacts on karst features.
	Potential impacts within Adjacent Lands	Portions of three headwater drainage features of Sinkhole Creek run through lands adjacent to PS Site 1. An Erosion and Sediment Control Plan will be required if this site is selected.	A network of headwater drainage features of Stoney Creek extends through lands adjacent to PS Site 2. An Erosion and Sediment Control Plan will be required if this site is selected.	None. A headwater tributary of Hannon Creek runs roughly parallel to Rymal Road East approximately 100 m south of PS Site 3.
Social/Cultural	Potential for Noise, Traffic, Dust Impacts Disrupting Surrounding Area During Construction	Medium, near residential Areas	Medium, near residential Areas	High, near residential Areas
	Proximity to Archaeological Resources	Potential for archaeological resources. A Stage 2 Archaeological Assessment is required.	Potential for archaeological resources. A Stage 2 Archaeological Assessment is required.	No archaeological concern
	Proximity Cultural Heritage Resources	No negative impacts to identified cultural heritage resources.	No negative impacts to identified cultural heritage resources	No negative impacts to identified cultural heritage resources.
	Land Ownership	Owned by City	Privately owned	Privately owned
Financial	Estimated Capital Costs including Land Acquisition	\$20.5 M	\$20.5 M	\$20.5M
Technical	Constructability and Site Access	Accessible by minor arterial road Rymal Road East	Accessible by urban local road Upper Centennial Parkway	Accessible by urban local road Rymal Road East
	Ability to Coordinate with Planned Infrastructure Improvements	Ability to coordinate with planned infrastructure improvements. Located within Elfrida Growth Area.	Ability to coordinate with planned infrastructure improvements. Located within Elfrida Growth Area.	Least ability to coordinate with planned infrastructure improvements. Located within urban area.
	System Reliability and Hydraulic Performance	Most preferred hydraulically.	Most preferred hydraulically.	This site is the least preferred hydraulically due to the distance to the demand centre results in the greatest pressure losses. It provides the least flexibility to fill the proposed PD7 EWSF.
Summary	A small wetland is present within the site and contains a species considered uncommon in the City of Hamilton and additional study is recommended for mitigation measures. Barn Swallows and Monarchs were observed foraging within the site. Medium impact during construction. Potential for archaeological resources. No negative impact to Cultural Heritage Resources. Owned by City. Owned by City. Ability to coordinate with planned infrastructure improvements. Reduced costs. Most preferred hydraulically.	A portion of a headwater drainage feature of Stoney Creek runs through the site and Barn Swallows were observed foraging over the site. Medium impact during construction. Potential for archaeological resources. No negative impact to Cultural Heritage Resources. Privately owned. Ability to coordinate with planned infrastructure improvements. Most preferred hydraulically.	The Site contains trees with the potential to support bat maternity colonies and construction may require the removal of trees, further assessment would be required. No negative impact to archaeological resources. No negative impact to Cultural Heritage Resources. Privately owned. Least ability to coordinate with planned infrastructure improvements. Located within urban area. Least preferred hydraulically.	

**Table 6.2 Conceptual Cost Estimates for Pumping Station**

Scope	Amount (\$Million)
Pumping Station Building (30m x 20m)	\$4.0
Rechlorination and Recirculation System	\$0.2
Process and Electrical Works	\$4.8
Site Works	\$2.0
Watermain Extension (to be included by City's other Projects)	\$0.0
Engineering (10% of construction cost)	\$1.1
City's Internal Resources/Staffing (10% of the sum of construction and engineering cost)	\$1.2
Land Acquisition (Land owned by the City)	\$0.5
Utility and Testing Allowances	\$2.0
Sub-total Cost	<b>\$15.8</b>
Contingency (30%)	\$4.7
Estimated Total	<b>\$20.5</b>

A contingency of 30% is also included in this cost. This cost estimates do not include watermain extension, which will be required and be included in the City's projects by others.

### 6.5 Pumping Station Mitigation Measures

Construction of the elevated water storage facility and pumping station are likely to result in some negative impacts. In most cases however, potential impacts will be limited to the period of construction and are considered manageable with the appropriate mitigation measures. Mitigation involves the application of appropriate measures to eliminate or reduce the negative impacts to ensure that any disturbances are managed by best available methods (e.g., restoration of areas disturbed during construction is considered mitigation). The following mitigation measures outlined in **Table 6.3** are recommended to ensure that any short term and long term disturbances are managed by best available methods. These measures will be confirmed and further defined during detailed design.

**Table 6.3 Pumping Station Mitigation Measures**

Potential Impact / Consideration	Mitigation
<b>Natural Environment</b>	
Tree and vegetation removal	<ul style="list-style-type: none"> <li>• All trees to be retained shall be clearly marked by an Arborist.</li> <li>• Establish tree protection (hoarding) prior to construction.</li> <li>• Replace all trees / vegetation that has been removed.</li> <li>• Remove any trees outside of the migratory bird nesting season (October 31 to March 31).</li> <li>• Restore disturbed areas / habitat to existing or better conditions.</li> </ul>
Wildlife Habitat and/or Species at Risk removal	<ul style="list-style-type: none"> <li>• If construction of the PS is proposed within 50m of this wetland, additional study is recommended to determine mitigation measures, including identification of a wetland buffer. If construction of the PS is proposed within 30m of this wetland, a permit from NPCA will be required per Ontario Regulation 155/06.</li> <li>• Since PS Site 1 is outside of any NPCA-Regulated Areas, as per NPCA comments as per NPCA responses. Permit may not be needed from NPCA. Discussions with City's Natural Heritage staff to determine appropriate buffer based on the additional study and City's Official Plan policies.</li> </ul>
Groundwater Management	<ul style="list-style-type: none"> <li>• Detailed hydrogeological investigations will be undertaken during detailed design to confirm dewatering requirements.</li> <li>• Obtain Permit to Take Water (PTTW) or apply for an Environmental Activity Sector Registry (EASR) based on dewatering requirements.</li> </ul>
Erosion and Sedimentation Control (ESC)	<ul style="list-style-type: none"> <li>• Prepare and implement an ESC plan based on the ESC Guideline for Urban Construction (Greater Golden Horseshoe Area Conservation Authorities, 2017).</li> <li>• The ESC plan should include details regarding the location and protection of proposed stockpile areas.</li> <li>• Ensure onsite monitoring of ESC during and after wet weather events.</li> <li>• Areas disturbed by construction will be restored and stabilized as soon as practically possible.</li> </ul>
Contamination of Soils through Spills and Leaks	<ul style="list-style-type: none"> <li>• Prepare and implement a Spills Management Plan.</li> <li>• The plan should include a list of materials and instructions regarding their use, emergency contact numbers, and the MECP Spills Action Centre contract information.</li> <li>• Educate contract personnel on the Spills Management Plan.</li> </ul>

**Table 6.3 Pumping Station Mitigation Measures**

Potential Impact / Consideration	Mitigation
Waste Disposal	<ul style="list-style-type: none"> <li>All waste generated during construction activity will receive proper disposal as per MECP requirements.</li> <li>Any contaminated soil disposal shall be consistent with Part XV.1 of the <i>Environmental Protection Act</i> and the Record of Site Condition Regulation (O.Reg 153/04).</li> </ul>
<b>Social/Cultural Environment</b>	
Noise / Vibration / Dust Control during construction	<ul style="list-style-type: none"> <li>Construction to take place during normal working hours and comply with the City's noise by-law.</li> <li>Dust control through the use of non-chloride dust suppressants and/or water spraying / street sweeping.</li> <li>For potential air quality issues associated with construction vehicle exhaust fumes, emission control devices should be in good working order.</li> <li>New or well-maintained heavy equipment and machinery should be used, with muffler / exhaust baffles and engine covers.</li> <li>Complete pre-condition surveys on adjacent building structures.</li> </ul>
Long-term Noise/Lighting/Visual Barrier Plan	<ul style="list-style-type: none"> <li>Provide a landscape and/or mitigation measure plan for noise, lighting, and visual barrier plan (e.g., landscapes, trees or others) to minimize the lighting, noise and visual impact on the neighbouring environment during design stage.</li> </ul>
Archaeological and Cultural Heritage Resources	<ul style="list-style-type: none"> <li>Complete a Stage 2 Archaeological Assessment of the pump station site.</li> <li>Should archaeological resources be discovered during construction, they may be subject to Section 48(1) of the Ontario Heritage Act. If this occurs, the contractor should stop work immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork in compliance with Section 48(1) of the Ontario Heritage Act. Additionally, the Funeral and Cremation Services Act (2002, c.33) requires that any person discovering or having knowledge of a burial site shall immediately notify the police or coroner. It is recommended that the Registrar of Cemeteries at the Ministry of Consumer Services is also immediately notified.</li> </ul>
Private Property Access	<ul style="list-style-type: none"> <li>Confine all construction activities to the working areas.</li> <li>The contractor will not be allowed to enter or occupy any private property without written permission from the landowner and a copy provided to the Region.</li> </ul>

**Table 6.3 Pumping Station Mitigation Measures**

Potential Impact / Consideration	Mitigation
Traffic Management	<ul style="list-style-type: none"> <li>• Disruptions to traffic should be restricted to off-peak hours.</li> <li>• Advanced notification of traffic disruptions should be provided in addition to the use of signs to direct motorists.</li> </ul>

## 7 Communications and Consultation

To meet the Municipal Class EA communications and consultation requirements for this Schedule B study, a variety of tools were used that include letter and email correspondence, individual meetings with agencies, two Public Information Centres (PICs) and posting notices and relevant information to the City's website at [www.hamilton.ca/PD7waterfacilities](http://www.hamilton.ca/PD7waterfacilities). Consultation with the public (which includes stakeholders and interested parties) and government review agencies is a necessary and important component of the Municipal Class Environmental Assessment process. To meet the consultation requirements for this Schedule 'B' project, the City of Hamilton ensured that the public and review agencies were informed of the Study and given the opportunity to provide input on the assessment and alternative evaluation process.

The following sections describe the communications and consultation activities undertaken throughout the course of the Study, as well as a summary of comments and feedback received.

### 7.1 Public and Agency Notification

As per the requirement of the Municipal Class EA document, two notices are required for Schedule B studies: one inviting the public to attend a PIC and the other advising the public of study completion. For this project, an additional notice was distributed inviting the public to attend PIC 2. The following describes the three notices issued for this study.

### 7.2 Notice of Study Commencement and Public Information Centre #1

This study was formally introduced to the public and agencies via a Notice of Public Meeting. The notice was a joint notice with the Elfrida Growth Area Study since the study areas overlap. The notice included a description of both the Elfrida Growth Study as well as a description of the purpose of this Class EA. The notice was distributed to those on the study mailing list via mail or email and was also published in local newspapers, as described in **Table 7.1**.

This notice briefly outlined the purpose and justification for the Study and also served as a Notice of Public Information Centre #1 (PIC 1). The notices also indicated that the PIC would be held on December 6, 2017. The City of Hamilton sent letters and contact response forms along with a copy of the Notice of Study Commencement to stakeholders and affected government agencies within the study area. Each recipient was asked to respond to the project team, indicating their interest in receiving further correspondence on the Study. Stakeholders remained on the mailing list for the duration of the public consultation process unless they requested to be removed. The Notice of Study Commencement and stakeholder list, as well as the letter and response form can be found in Communication Plan **Appendices G and H**.

### 7.3 Notice of Public Information Centre # 2

Notice of PIC 2 was published in the local news on May 31, June 1 and June 7, 2018, as described in **Table 7.1**. The notice briefly outlined the purpose and justification for the study. The notices also indicated that the PIC would be held on June 12, 2018 to present the alternative solutions, the evaluation of the alternatives and the preferred recommended solution.

The City of Hamilton sent a copy of the Notice of Public Information Centre #2 to stakeholders and agencies as well as members of the public in close proximity to the study area. Each recipient was asked to respond to the project team, indicating their interest in receiving correspondence on the study. A copy of the Notice can be found in **Appendix G**.

### 7.4 Notice of Study Completion

The Notice of Study Completion explained that the Project File Report has been placed on public review for a period of 30 calendar days. The notice described the review period, as well as details regarding the process for submitting written objections to the Minister of the Environment, Conservation and Parks within the 30-day review period. The notice was distributed to those on the study mailing list via mail or email and was also published in local newspapers, as described in **Table 7.1**.

**Table 7.1 Notification and Publication Dates**

Notification	Newspaper / Publication Date
Elfrida Growth Area Study Notice of Public Meeting (Study Commencement and PIC 1)	Hamilton Spectator / November 24, 2017
Notice of Public Information Centre (PIC 2)	Glanbrook Gazette / May 31, 2018; Stoney Creek News / May 31, 2018 and June 7, 2018; and Hamilton Spectator / June 1, 2018.
Notice of Study Completion	To be determined (TBD)

### 7.5 Public Information Centre # 1

A PIC was held in conjunction with the Elfrida Growth Area Study on Wednesday December 6, 2017 from 6:00pm to 8:30pm at Valley Park Recreation Centre and Arena (Gymnasium) located at 970 Paramount Drive in Stoney Creek. The PIC followed a formal meeting set up with a presentation kicking off the meeting followed by small group discussions for the Elfrida Growth Area Study. Information was available regarding this Class EA for the public to review and discuss with project team members. Display boards specific to this study presented the study background, overview of the Class EA process, study area land uses and alternative sites, proposed evaluation criteria and next steps.

Attendees were invited to sign-in, review the display boards, ask questions and provide comments. Comment sheets were available for those who wished to provide comments. A copy of the display boards and comment sheet were posted on the City's website following the PIC for those who were unable to attend. Refer to **Appendix H** for a copy of the display boards.

A total of 19 people signed in over the course of the PIC 1. The majority of attendees were members of the general public, but others included consultants and representatives from the City. Two comment sheets were received including a request for a copy of the display boards and a note that roads and RHV need to be expanded at the same time as more development and more traffic.

## 7.6 Public Information Centre #2

Notice of The second PIC was held on June 12, 2018 in conjunction with the Elfrida Growth Area Study. The PIC was held from 6:00pm to 8:30pm at the Valley Park Recreation Centre and Arena; located at 970 Paramount Drive, Stoney Creek. The PIC followed an informal open house format with large display boards set up around the gymnasium. The display boards presented the study background, an overview of the Class EA process, evaluation criteria, archaeological assessment findings, and the proposed alternative locations. The design matrices were presented to the public to provide transparent communication on the selection process of the preferred site locations, and finally, the preferred site locations were identified. The Elfrida PIC included a formal presentation at 6:30pm, for which COLE presented the slides relating to the Elevated Water Storage Facility and Pumping Station Class EA. Refer to **Appendix H** for a copy of the display boards.

A total of 89 people signed into the public meeting for the Elfrida Growth Area Study and the Elevated Water Storage Facility and Pumping Station Municipal Class EA for Pressure District 7 through the duration of the PIC. Several individuals (14 total) signed their names more than once, resulting in only 67 distinct and separate contacts collected. Of these, 15 people signed the Elevated Water Storage Facility and Pumping Station Municipal Class EA for Pressure District 7 specific sign-in sheet through the duration of the PIC.

Four comments were received regarding the PIC 2, including an inquiry on the long term solution for the private wells that were previously affected by construction on another project, a request for an electronic copy of the display boards, a request for the Natural Heritage studies conducted on their properties, and a request for the completed environmental reports (including Stage 1 Archaeological Assessment Report and Cultural Assessment Report) and notification of future environmental and archaeological assessments.

## 7.7 Agency and Public Comments and Responses

A summary of the comments and questions received from the public and agency representatives during the Class EA process has been provided in **Table 7.2**. Copies of the actual written correspondence received from the public and agencies have also been provided in **Appendix I**.



**7.2 Agencies and Public Communications Tracking Log**

Date	Type (Email, Letter, Phone Call)	Commenter	Comment	Response/Action
			<p>The MECP noted that the report addressed source water protection.</p> <p>The MECP assumed that the potential need for a Permit to Take Water was cited in case it is needed for construction-related dewatering.</p>	<p>The City is confident that sufficient level satisfied with the assessment to determine the preferred locations. While additional work will be required for the preferred site, it relates to issues associated with detailed design and not site selection.</p> <p>The process for requesting a Part II Order has been updated in the Report.</p> <p>Noted.</p> <p>The requirement for a Permit to Take Water has been included in Section 14 Permits and Approvals.</p> <p>When the Project File is finalized, the final documents and Notice of Completion will be sent to MECP.</p>

**7.2 Agencies and Public Communications Tracking Log**

Date	Type (Email, Letter, Phone Call)	Commenter	Comment	Response/Action
July 26, 2018, August 7, 2018 and March 14, 2019	E-mail and Telephone call	Abu Sanneh John C. Munro Hamilton International Airport	<p>Given the preferred site for EWSF as Site 3. In the event that any storage facility site, other than EWSF Site #3, becomes the preferred site, the Hamilton International Airport will be informed. It is also recommended that the proposal be submitted to Transport Canada and NAV Canada for review to ensure the structure(s) meet lighting requirements and flight procedures are not impacted.</p> <p>The John C. Hamilton International Airport has no objection to EWSF # 3 and PS Site 1 as proposed.</p> <p>Please note that the Airport’s assessment is limited to the impact of the proposed structure on the Airport Obstacle Limitation Surfaces and <i>Hamilton International Airport Zoning Regulations</i>. Therefore, the proposed project should also be submitted to NAV CANADA and Transport Canada for further review and evaluations.</p>	<p>A Land Use Submission Form for the proposed (or preferred) elevated water storage facility EWSF Site #3 to NAV CANADA using the Land Use Submission Form, and the Transport Canada submission using the Aeronautical Assessment For Obstruction Evaluation Form were submitted for evaluation(see responses from both NAV Canada and Transport Canada for details below).</p> <p>Noted.</p> <p>A Land Use Submission Form for the proposed (or preferred) elevated water storage facility EWSF Site #3 to NAV CANADA using the Land Use Submission Form, and the Transport Canada submission using the Aeronautical Assessment For Obstruction Evaluation Form were submitted for evaluation (see responses from both NAV</p>

**7.2 Agencies and Public Communications Tracking Log**

Date	Type (Email, Letter, Phone Call)	Commenter	Comment	Response/Action
				Canada and Transport Canada for details below).
August 15, 2018	E-mail	David Deluce, MCIP, RPP Manager, Plan Review & Regulations Niagara Peninsula Conservation Authority (NPCA)	PS Site 1 – No NPCA interest; EWSF Site 3 – No NPCA interest; and In each case, the sites are outside of any NPCA-Regulated Areas.	Noted.
April 24, 2018	E-mail	Darren Kenny Hamilton Conservation Authority (HCA)	If the recommended sites EWSF Site 3 and PS Site 1 are indeed going to be pursued, HCA would not need to be circulated on this Class EA.	The Hamilton Conservation Authority will be consulted, if PS Site #2 remains under consideration.
July 11, 2018	E-mail and Letter	Brooke Herczeg MPL Heritage Planner, Heritage Program, Programs and Services Branch, Ministry of Tourism, Culture and Sport (MTCS)	<p>MTCS’s interest in this EA project relates to its mandate of conserving Ontario’s cultural heritage, which includes:</p> <ul style="list-style-type: none"> <li>• Archeological resources, including land-based and marine;</li> <li>• Built heritage resources, including bridges and monuments; and,</li> <li>• Cultural heritage landscapes.</li> </ul> <p>Under the EA process, the proponent is required to determine a project’s potential impact on cultural heritage resources. We would appreciate being informed as this project continues through the EA process.</p>	Noted.
May 24, 2018	E-mail	Transport Canada, Environmental Assessment Program	Please note Transport Canada does not require receipt of all individual or Class EA related notifications. We are requesting project proponents to self-assess if their project will interact with a federal property and require approval and/or authorization under any Acts administered by Transport Canada.	Self-Assessment under the Aeronautics Act was completed and determined that this project will not require further approval or authorization from Transport Canada.

**7.2 Agencies and Public Communications Tracking Log**

Date	Type (Email, Letter, Phone Call)	Commenter	Comment	Response/Action
July 17, 2019	Letter and E-mail	Ovais Mateen Civil Aviation Safety Inspector Aerodromes and Air Navigation Transport Canada	<p>Proposals for both preferred EWSF Site 3 and PS Site 1 were submitted to Aerodromes and Air Navigation for evaluation. No protection is required for marking and lighting of both PS Site 1 and EWSF Site 3.</p> <p>The assessment expires in 18-months from the date of assessment unless extended, revised or terminated by Aerodromes and Air Navigation Transport Canada.</p> <p>If there is a change in the intended installation, a new submittal is required.</p> <p>Please be advised that a Land Use submission form is to be applied for and sent separately to Nav Canada.</p>	<p>Noted.</p> <p>Re-submit Transport Canada Aeronautical Assessment For Obstruction Evaluation Form, for the proposed (or preferred) EWSF Site 3 and PS Site 1, if the construction of the proposed sites starts after January 17, 2021, since the current assessment expires in 18-month from the date of assessment (July 17, 2019).</p> <p>Noted.</p> <p>A Land Use submission form has been submitted to NAV Canada for approval. NAV Canada has evaluated the captioned proposal. NAV CANADA has no objection to the project as</p>



## 7.2 Agencies and Public Communications Tracking Log

Date	Type (Email, Letter, Phone Call)	Commenter	Comment	Response/Action
		Management (AIM) NAV Canada		A completed and signed Construction Completion Notification will be required to be sent to NAV Canada, upon completion of construction.
May 28 and May 29, 018	Letter and E-mail	Caitlin Cafaro Canadian Environmental Assessment Agency (CEAA/AECC)	Under CEAA 2012 the proponent must provide the CEAA with a description of their proposed project if it is captured under the above noted regulations. Regulations were reviewed and the project does not fall under the specified criteria.	Noted.
May 30, 2018:	E-mail and Response Form	Nicholle Eichenberger Infrastructure Ontario (IO)	City's reply indicated that the project did not require any MOI lands at the moment. IF further land acquisition is necessary to complete this project, MOI will be contacted.	Noted.
May 25, 2018	E-mail and Response Form	Jenny Seo Hydro One	In the initial review, it was confirmed that there were no Hydro One Transmission Facilities (above 115 kV) in the subject areas. Note that there may also be Hydro One Distribution Facilities in the study area (below 115 Kv).  In order to cover off the impact to all hydro one assets, EA should be sent to the following email address: WesternFBCPlanning@hydroone.com. No further consultation with Hydro one Networks Inc. is required if no changes are made to the current information.	Noted.
June 19, 2018	Response Form and E-mail	IsabelVautour-Larabee Union Gas	Notification to Union Gas is only required if there may be a conflict with natural gas pipe. A few screen shots showing the Union Gas system in the study area were provided. We wish to be notified for continued involvement in the project process.	Noted.

## 7.2 Agencies and Public Communications Tracking Log

Date	Type (Email, Letter, Phone Call)	Commenter	Comment	Response/Action
Dec 6, 2017	PIC #1 Comment Sheet	Public	More development. More traffic. Roads and RHV need to be expanded at the same time (no blaming other governments).	Noted.
Dec 6, 2017	PIC 1 Comment Sheet	Public	Please email copy of study.	Emailed a copy of the display boards.
June 18,2018	PIC #2 Comment Sheet	Public	An inquiry on the long term solution for the private wells that were previously affected by construction on another project.	Given that the comment was with regards to another project, the concern was directed to the appropriate City staff member.
June 18,2018	PIC #2 Verbal Comment	Public	A representative had given permission to the Cole Engineering Group Ltd. (COLE) team to conduct Natural Heritage studies on their properties. Following completion of the studies it is requested that the results be shared.	The observations on Natural Environment features on their properties during our field visits were sent to the representative, upon completion of the Natural Environment Report on January 14, 2019.
June 18,2018	PIC #2 Verbal Comment	Public	Request for an electronic copy of the display boards. The display boards were sent to the attendee on July 4, 2018.	The display boards were sent to the attendee on July 4, 2018

## 7.8 Indigenous Communities Consultation

As part of the Class EA planning process, Indigenous communities were contacted. Indigenous communities were sent a copy of the notices described previously in **Section 7** which included, the joint Elfrida Growth Area Study Notice of Public Meeting, Notice of PIC 2 and the notice of completion. Follow up phone calls were also conducted with communities where no comments were received. Record of these phone calls have been provided in **Appendix J**. Copies of the actual written correspondence received from the public and agencies have also been provided in **Appendix J**. The following responses were received from indigenous communities.

**Table 7.3 Responses Received from Indigenous Communities**

Contact	Date	Method	Comment	Response/Action
Todd E. Williams / Tracey General / Allan McNaughton Haudeosaunee Development Institute (HDI) Haudeosaunee Confederacy Chiefs Council (HCCC)	August 20, 2018	Email	It was requested that a copy of the completed environmental reports be provided throughout the project.  HDI is interested in participating in the field assessments (Archaeology/Cultural and Environmental).	The completed Stage 1 Archeological Assessment Report and Cultural Heritage Resource Assessment were sent on August 22, 2018 and August 23, 2018, respectively. Other environmental reports will be provided as they become available.  The completed Natural Environment Report was sent on January 14, 2019.  Future notification to the party is required for field work related to environmental and archaeological assessments.
Joelle Williams / Megan DeVries Department of Consultation and Accommodation (DOCA) Mississaugas of the New Credit First Nation (MNCFN)	May 2, May 4, May 7, May 8 and August 7, 2018	Email	MNCFN required a copy of the draft Archaeological Stage 1-AA report before its submission to the Ministry of Tourism, Culture, and Sport for our review.  MNCFN's reply indicated that if a Stage 2 Archaeological Report	A copy of the Stage 1-AA report was sent to MNCFA on August 8, 2018.  MNCFA would be informed and the MNCFA field participation agreement would be executed in the future.

**Table 7.3 Responses Received from Indigenous Communities**

Contact	Date	Method	Comment	Response/Action
			would be required for the project.	
Maxime Picard Huron-Wendat Nation (HWN)	May 24, 2018 and August 6, 2018	Email	Requested for Archaeological Assessment (AA) for the project. If a Stage 3 Archaeological Assessment is required for the project, HWN would like to participate in the assessment.	A copy of the Stage 1- AA report was sent to HWN for review on August 3, 2018 Noted
Paul General Six Nations Eco- Centre	August 1, 2018	E-mail and Telephone	Requested for the PIC notifications.	A PIC #2 notice letter and comment sheets were sent via email

## 8 Permits and Approvals

Table 8.1 presents the review and approvals that will be required from agencies prior to construction.

**Table 8.1 Permits and Approvals**

Permits and Approvals
MECP Environmental Compliance Approval
MECP Permit to Take Water (PTTW)
DWWP Schedule 'C' for watermain extension
Drinking Water Works Permit (DWWP) Amendment
Ministry of Natural Resources and Forestry (MNRF)
DFO Self-Assessment should be completed by an aquatic biologist to determine the need for an application for authorization under the Fisheries Act, 1985
City of Hamilton (site plan approval, building permit etc.)
City of Hamilton Zoning Variance, if current zoning requirements cannot be met
Ministry of Tourism, Culture and Sport
Electrical Safety Authority (ESA)
NAV Canada Notification
Transport Canada Notification
John C. Munro Hamilton International Airport Notification
TSSA Approvals
Maintain Permits / Approvals Status Log and Schedule
Approvals from or notification to Horizon Utilities, Bell Canada, Hydro One and Rogers may also be required and should be determined at the detailed design stage

### 8.1 MECP

The City will need to complete an amendment to its existing DWWP to add the elevated water storage facility. This will involve a technical review by the MECP. A watermain extension, if required, is a pre-approved work requiring completion of "Schedule C" to the DWWP.

### 8.2 City of Hamilton

A site plan approval and building permit will need to be obtained from the City of Hamilton.

The EWSF Site 3 is located adjacent to an agricultural zone, Zoning By-law 05-200 permits certain public uses in all zones (**Section 4.4**), subject to the use or building being in compliance with the most restrictive regulations of the zone. Variances may be required if the site design cannot comply with the regulations of the zone where it is located.

The existing zoning is A1 (Agriculture) at the preferred site PS Site 1 and does not allow the construction of structures taller than 11m. Zoning By-law 05-200 permits certain public uses in all zones (**Section 4.4**), subject to the use or building being in compliance with the most restrictive regulations of the zone. Variances may be required if the site design cannot comply with the regulations of the zone where it is located.

### **8.3 Airport Authority**

The elevated water storage facility is proposed to be located in proximity to the John C. Munro Hamilton International Airport. Therefore, it is recommended that NAV Canada, Transport Canada, and John C. Munro Hamilton International Airport be provided the pertinent information for review prior to proceeding with project implementation. These parties have been contacted during the Class EA as part of the consultation process.

## 9 Conclusions and Recommendations

The following is a summary of the key findings presented in the Project File report.

*A solution is required to provide additional storage and pumping capacity to support the future growth within PD7 and PD23, to enhance water system security and reliability, and to meet the MECP guidelines and City design standards, while improving system operating efficiencies.*

To select the preferred location of an EWSF, five alternative locations were evaluated for hydraulic performance and siting, the following five alternative sites were identified and evaluated:

- EWSF Site 1 - Lot 7, Con. 1, Block 5, Binbrook Twp;
- EWSF Site 2- Lot 5, Con. 1, Block 4, Binbrook Twp;
- EWSF Site 3 - 420 Trinity Church Road;
- EWSF Site 4 - 399 Glover Road; and,
- EWSF Site 5 - Lot 14, Con. 2, Glanford Twp.

To confirm the preferred location of a pumping station, three alternative locations were evaluated for hydraulic performance and siting, the following three alternative sites were identified and evaluated:

- PS Site 1 - Lot 24, Con. 8, Saltfleet Twp;
- PS Site 2 - Lot 24, Con. 8, Saltfleet Twp; and,
- PS Site 3 - 1645 Rymal Road East.

Following the evaluation of each alternative against natural, social, economic, and technical criteria, the following preferred solutions were identified:

- EWSF Site 3 - for the proposed elevated water storage facility; and,
- PS Site 1 for the proposed pumping station.

### 9.1 Future Commitments

This Municipal Class EA was completed in accordance with the *Environmental Assessment Act*. Following the 30 day public review period and EA clearance, it is recommended that the preferred solution proceed to detailed design, approvals and construction as outlined in this report.

The following must be completed prior to implementation of the preferred locations for the proposed elevated water storage facility and/or pumping station:

- Confirm the mitigation measures outlined in **Section 5.5** (for EWSF Site 3) and **Section 6.5** (PS Site 1) of this report, including further refinement to be completed during detailed design stage;
- Continue to consult with review agencies, (incl. MECP, Utilities, Indigenous communities, MNRF, MTCS), as applicable;
- Notify the requested parties (incl. Indigenous communities Haudeosaunee Development Institute (HDI), Haudeosaunee Confederacy Chiefs Council (HCCC) of field work related to environmental and archaeological assessment;

- Notify Indigenous communities, which requested updates of any archaeological findings and any follow-up investigative reports;
- Undertake a geotechnical investigation and hydrogeological investigation;
- Stage 2 Archeological Assessment for the proposed (or preferred) PS Sites 1. Findings from Stage 2 may trigger additional study which would also need to be completed prior to implementation;
- Additional Cultural Heritage Study for the proposed (or preferred) EWSF Site 3;
- The design of sites will comply with zoning requirements where possible, however, zoning variances may be required where site zoning regulations cannot be met;
- Re-submit proposal to NAV Canada for the proposed (or preferred) EWSF Site 3 and PS Site 1, if the construction of the proposed sites starts after April 2, 2020, since the current assessment expires in 12-months from the date of assessment (April 2, 2019);
- Re-submit Transport Canada Aeronautical Assessment For Obstruction Evaluation Form, for the proposed (or preferred) EWSF Site 3 and PS Site 1, if the construction of the proposed sites starts after January 17, 2021, since the current assessment expires in 18-month from the date of assessment (July 17, 2019); and,
- Obtain the permits and approvals as identified in **Table 8.1**.

## 10 References

- Water and Wastewater Master Plan Class Environmental Assessment, KMK, 2006;
- Growth Related Integrated Development Strategy (GRIDS), City of Hamilton, 2006;
- Design Guidelines for Drinking Water Systems, Ministry of Environment (MOE), 2008;
- Highland Road HD007 HDR07 Upgrade Hydraulic Assessment Report, Stantec, 2012;
- Hamilton Southeast Mountain Water Servicing Strategy- FINAL, Stantec, 2013;
- Municipal Class Environmental Assessment, Municipal Engineering Association, MEA 2015;
- Growth Plan for the Greater Golden Horseshoe, Ministry of Infrastructure, 2017;
- Greenbelt Plan, Ontario 2017;
- Niagara Escarpment Plan, Ontario 2017; and,
- Elfrida Subwatershed Study, Final Phase 1 Report by Aquafor Beech Limited, May 2018.